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ABSTRACT

This fourth volume of the 1981 Report of the Select Panel for the Promotion of Child Health presents a collection of commissioned papers prepared in order to provide working groups of the panel with background information on major areas of health care and health policy toward children and pregnant women. The papers are grouped according to the following topics: health protection and promotion; health services needed by children, adolescents, and pregnant women; access of children and pregnant women to health care; financing and organization of health services; health manpower; planning and administration of health services; and research and information that is still needed in relation to maternal and child health. Also included is a summary of the proceedings of the Panel's workshop on organization of health services, held February 21 to 22, 1980. The Workshop focused on a description of six organizational mechanisms for providing needed health services to infants, children, and pregnant women, sources of support for improved existing organizational mechanisms, and ways of ensuring effective use of federal child health funds. (Author/MP)

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BETTER HEALTH FOR OUR CHILDREN: A NATIONAL STRATEGY

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The Report Of The Select Panel For The Promotion Of Child Health

To The United States Congress And The Secretary Of Health And Human Services

1981

Volume IV
Background Papers

THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service
Office of the Assistant Secretary for Health
and Surgeon General
DHHS (PHS) Publication No. 79-55071

DEPARTMENT OF HEALTH AND HUMAN SERVICES
OFFICE OF THE SECRETARY

SELECT PANEL FOR THE PROMOTION
OF CHILD HEALTH
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December 2, 1980

Honorable Patricia R. Harris
Secretary
Department of Health and Human Services

Honorable Edward M. Kennedy
Chairman, Subcommittee on Health and Scientific Research
Senate Committee on Labor and Human Resources

Honorable Henry A. Waxman
Chairman, Subcommittee on Health and the Environment
House Committee on Interstate and Foreign Commerce

Dear Secretary Harris, Senator Kennedy, and Congressman Waxman:

I am proud to transmit to you the report of the Select Panel for the Promotion of Child Health, in accordance with Public Law 95-626 which created the Panel.

The 17 members of the Panel and our staff have devoted an extraordinary amount of time, energy, and--we hope--wisdom to our task. Our commitment has reflected how seriously we have all come to take the opportunity offered us by the breadth of the mandate Congress assigned to us. The chance to design the foundations of a national effort to improve the health of our children has infused our work with excitement and zest. It has also permitted us to mobilize the contributions of hundreds of individuals and organizations throughout the country, engaged in large ways and small in understanding and serving the health needs of this country's children and families. The Panel, and the Nation, are profoundly in their debt.

We were impressed with the richness and diversity of available talent, competence and commitment, reflected in the accomplishments of a great variety of public programs and private efforts in communities throughout the country. We also became starkly aware of the extent of the unsolved problems that remain.

Our recommendations reflect a hardheaded analysis of serious unmet needs in child and maternal health, a recognition of past successes and future opportunities for effectively meeting these needs, careful consideration of the weaknesses and strengths of current Federal programs and policies, and a sober and pragmatic assessment of the capacity of our institutions to provide parents, professionals, and others working to improve child health with the scientific, financial, and organizational support they need.

Volume I of our report presents our major findings and recommendations.

Volume II contains specific recommendations for improving five major Federal programs with significant impact on child health:

-- Title V of the Social Security Act
-- The Special Supplemental Food Program for Women, Infants and Children
-- P.L. 94-142: The Education for All Handicapped Children Act
-- Medicaid and EPSDT
-- Community Mental Health Centers and Services Systems

Volume III consists of what we believe to be the most comprehensive compilation of data on child health in the U.S. yet to be published.

We also submit a collection of background papers, listed at the end of Volume I, which were prepared for the Panel, and which we believe will be extremely useful to those who wish to become familiar in greater depth with selected aspects of the issues we have analyzed.

Some of our recommendations should be acted on immediately. Others are designed to be considered and implemented over a period of years. All of our recommendations are practical, and as specific and concrete as we have been able to make them.

The goals we set out encompass an extremely broad sweep of issues. In accordance with our congressional mandate we have addressed and analyzed issues and policies pertaining to the physical environment, health behavior, health services organization and financing, and health research. We did not try to go beyond these, although we are fully aware that other aspects of the social environment exercise a powerful influence on health. It is true that if we could eliminate poverty and racism in this country, if high quality preschool programs and community supports for families were more available, if teachers and schools were more effective, if we had full employment and every young person could look forward to productive work, our health indicators would improve significantly. Nevertheless, we have not focused on these issues, both because they are outside the Panel's mandate, and because we wish to help direct public attention to the extensive opportunities to improve child health by improving health policies and programs.

The Panel has asked me to call your attention to an additional problem we faced in defining our mandate. As you know, the legislation that established the Panel asked us to look at the health of "children and expectant mothers." Child health is obviously inseparable from maternal health. The health of the mother during pregnancy is unquestionably a major determinant of child health. But as we looked beyond purely physiological factors in child health, we found that our concerns must include fathers as well as mothers, both in relation to their role in the decision to conceive a child, and to their continuing role in providing nurturance, support, protection, and guidance to their children as they grow. Not only is the family the primary unit for the delivery of health services to infants and children, but the family environment is probably the greatest influence on a child's health. We wish to be clear that our use of the term "maternal and child health," when we describe and analyze both needs and interventions, is in no way inconsistent with our conviction that fathers as well as mothers are central to raising healthy children.

We are grateful for the opportunity you have given us to engage in this work, and thank you for the help and support we have received from you and your associates in the course of our deliberations. We trust that the value of our efforts will prove to have justified the investment that the American public has made in the creation of this report.

I am sure you share with us the conviction that public policy, no matter how well conceived and carried out, can contribute only modestly to the vigor, grace, and joy we wish to see in our children's lives. But as our report makes clear, public policy and programs can mean the crucial difference, especially in the lives of the most vulnerable of our children.

We hope most profoundly that this report will contribute to shaping public policy in ways that will help all American families and communities to protect and promote the health of all of our nation's children.

Respectfully and sincerely yours,

Lisbeth B. Schorr

Lisbeth Bamberger Schorr
Chairperson

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†The Panel members who are representatives of the Department of Health and Human Services wish to commend the Panel as a whole for its thorough information gathering and careful analysis of child health problems. They believe the Panel's report is an extremely useful document. However, the specific programmatic and budget recommendations contained in the report have not yet been formally considered by the Department or by the Executive Office of the President. Thus, participation by Department representatives in the Panel's activities cannot be construed as an Administration endorsement of the recommendations.

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PREFACE

The commissioned papers in this collection were prepared for working groups of the Select Panel for the Promotion of Child Health, to provide them with background information on major realms of health care and health policy toward children and pregnant women. In all cases, authors were chosen—whether from academic, governmental, or private consulting backgrounds—on the basis of special experience and knowledge of those issues in maternal and child health care which were of particular interest and concern to the Panel.

The authors were instructed to develop papers which not only described the state of the art in the fields they reviewed, but also set forth policy issues and options worthy of the Panel's consideration. It was understood from the outset that their papers would be intended to enrich the deliberations of the Panel and ensure that all relevant facts and views were brought to the working groups' attention. The ideas contained in the papers have been used only selectively in formulating the final recommendations found in volumes I and II of the Panel's report.

These papers cannot presume to offer a complete review of every aspect of health and health care for children and pregnant women. But in the aggregate, they do represent what we would regard as one of the most complete recent reviews of policy issues in the field. As such, they are a significant element of the Panel's overall contribution to policy discussions, one which we hope provides a valuable resource for decisionmakers, researchers, and students of the health sciences and public policy. Many of the papers included here also will be reprinted subsequently, usually in somewhat modified form, in professional journals and other sources.

The organization of the volume needs no special explanation, except for the final section, which is not a commissioned paper but rather the proceedings of a workshop conducted by the Panel in February of 1980, involving a number of distinguished scholars and decisionmakers. The workshop focused on major policy issues in the delivery of maternal and child health care.

Special thanks go to Ms. Barbara Furst, who served as editor for the entire volume, working extensively with individual authors to put their papers into final form for publication.

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Volume IV
Background Papers

SECTION I

HEALTH PROTECTION AND PROMOTION

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ENVIRONMENTAL HAZARDS TO CHILDREN: ASSESSMENT AND OPTIONS FOR AMELIORATION

by
LEON S. ROBERTSON, Ph.D.*

INTRODUCTION

The developmental capacities of children in healthy environments are a source of great awe to those who have observed a child grow in such circumstances. To see those capacities crippled or lost in hazardous environments is among the most painful of human experiences. When control of environmental hazards is beyond society's knowledge or resources, the results are tragic. When society has the knowledge and resources but fails to apply them, society's most basic values are in question.

Some environmental hazards to children in the United States are not well enough understood or are beyond our ability to change at present. However, many are well known and can be changed with available technical, economic, and social resources.

This report is an assessment of principles that can be applied to minimize disease and injury to children. Although specific options for various levels of Government, as well as private, efforts to ameliorate some of the more common current child health problems are presented, substantial attention is directed to the premises and principles from which the options are derived. The purpose here is not only to point to the reduction of current problems but to note the context in which future threats to child health can be anticipated and avoided.

The environment is much too broad a subject for treatment as a single entity. Some of the environments that bear on child health, such as education, medical care, nurturing, and nutrition are discussed in more detail elsewhere in this volume. The main issue discussed here is the protection of children from the harmful biological, chemical, and physical agents in their environments. The exposure of children to these agents and

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the effects of or lack of ameliorative efforts are mainly consequences of the social environment, including *governmental action and inaction.*

CURRENT CAUSES OF DEATH AND ILL HEALTH IN CHILDHOOD

Certainly the most reliable and usually the most important indicators of the hazards to the health of a population are the deaths attributable to various causes. Death among children varies substantially with age. In 1975, some 51,000 children died in the first year of life (infants); an average of about 1,600 died at each year of age from 1 to 14, but this increased to an average of more than 4,200 at each year of age from 15 to 19. More than 94,000 died before their 20th birthday.

The relative magnitude of the contribution of "causes" of these deaths depends on what categories of cause are used and how finely they are categorized. Table 1 presents the leading categories of causes of death of children in 1975 according to the National Center for Health Statistics (*1*). More than 26,000 infants died, mainly from conditions associated with birth. Congenital abnormalities from genetic defects or prebirth conditions (toxic conditions or malnutrition in the uterus) killed more than 8,500. Influenza and pneumonia caused more than 2,000 infant deaths in 1975, but this number is much larger in years of influenza epidemic.

After age 1, motor vehicle injuries were the leading cause of deaths of children—4,607 of the deaths from ages 1 to 4 and 8,052 of the deaths of those 15–19 years of age. About 10,400 of the total motor-vehicle-related deaths were to vehicle occupants and 2,500 were pedestrians struck by vehicles. Drownings, fires, and unintentional injuries by firearms and poison ingestions accounted for 60 percent of the 10,887 unintentional injuries other than those related to motor vehicles. Deaths from fires in motor vehicle crashes were usually counted as motor vehicle deaths rather than fires. Most injury deaths increased substantially after age 15, including 70 percent of the 2,888 homicides and 90 percent of the 1,764 suicides, but fire deaths were most frequent in children less than 5 years old.

Deaths from malignant neoplasms, numbering 3,906, were also relatively constant from ages 1 to 14, but increased in the late teens. The 2,444 cardiovascular disease deaths were more frequent among infants (33 percent) and 15–19 year olds (29 percent). More than two-thirds of the "all others" category were infant deaths and almost half of those deaths were attributed to "symptoms and ill-defined conditions." A more detailed presentation of categories of death, disability, and diseases of children, including trends over time, is included in Volume III of the Select Panel's report.

The consideration of current causes of death is as interesting in terms of what is not on the list as what is on it. For example, in 1975 no one less than 20 years of age died of poliomyelitis, which 25 years before was among the most feared of "children's" diseases (although adults were sometimes infected by the virus as well), not only because it killed but because more often it paralyzed.

TABLE 1. Leading "Causes" of Deaths of Children and Teenagers in the United States, 1975

Causes of Deaths	Age in years					
	<1	1–4	5–9	10–14	15–19	Total
Birth injury (difficult labor, hypoxia, anoxia)	26,585	10	6	2	1	26,604
Unintentional injuries	1,337	3,611	3,033	3,785	12,035	23,801
Motor vehicle injuries	(255)	(1,321)	(1,576)	(1,710)	(8,052)	(12,914)
Drowning	(40)	(743)	(501)	(690)	(1,285)	(3,259)
Fire	(135)	(617)	(360)	(220)	(222)	(1,554)
Firearms	(3)	(71)	(120)	(304)	(428)	(926)
Poisoning	(31)	(121)	(37)	(93)	(541)	(823)
Other injuries	(873)	(738)	(439)	(768)	(1,507)	(4,325)
Congenital abnormalities	8,582	1,141	424	318	345	10,810
Malignant neoplasms	129	711	929	878	1,259	3,906
Influenza and pneumonia	2,201	527	177	185	323	3,413
Homicide	178	317	136	249	2,008	2,888
Cardiovascular diseases	814	338	232	344	716	2,444
Suicide	0	0	0	170	1,594	1,764
All others	10,699	2,405	1,248	1,363	2,986	18,701
Total	50,525	9,060	6,185	7,294	21,267	94,331

Data on disability and shorter term morbidity are less reliable than data on deaths. The death rates from particular causes probably reflect somewhat the degree of disability from those same causes in cases that disable as well as kill. For instance, motor vehicles account for about half of permanent paralysis (paraplegia, quadriplegia), from injuries similar to those that cause death (*2*). However, short-term morbidity in children is dominated by upper respiratory conditions and ear infections that seldom lead to disability or death (*3*). Table 2 illustrates this by the numbers of days of restricted activity per 100 persons per year for children under 6 years of age and those 6–16 as reported by the National Health Survey of 1976 (*4*).

It is not possible to say that an exact percentage of childhood death, disability, and short-term morbidity is caused by environmental conditions. If one uses the term in the broad sense to include inadequate social and physical environments and nutrition as well as hazardous agents, it should be evident that environment contributes to the vast majority of children's health problems.

Early neonatal deaths are associated with low birth weight, teenaged mothers, and minority status of mothers—each related to socioeconomic and medical care environments. Such deaths have declined substantially in recent years, although the specific degree to which this can be attributed to improved nutrition, improved medical care, and abortion of high-risk fetuses is not known (*5*).

Injuries are entirely attributable to environmental agents, although these are augmented by temporary psychological or physiological states, especially those altered by alcohol use. The old notion of "accident proneness" as some long-term psychological or physical trait that causes a large proportion of injuries has been discredited by competent research (*6*). Whatever the causes, the evidence is substantial that unintentional injuries can largely be prevented by reducing environmental hazards (*7*) and that even intentional injuries (homicide and suicide) can be reduced by changing environments. For instance, in Birmingham, England, the suicide rate was reduced by removing carbon monoxide from coal gas used for cooking, which people intentionally breathed in a significant

TABLE 2. Days of Restricted Activity Per 100 Persons Per Year

	Age	
Cause of Restriction	**Under 6 Years**	**6–16 Years**
Upper respiratory conditions	390	214
Infective and parasitic diseases	217	172
Influenza	208	182
Injuries	70	154
Digestive system	48	40
All others	176	107
Total	1,109	869

number of suicide attempts (*8*). Homicide rates are substantially lower in countries where handgun ownership is severely limited (*9*).

As more is learned about congenital abnormalities and malignant neoplasms, it will hardly be surprising if more and more environmental pollutants are found to affect the genetic material of parents and aspects of development of the unborn fetus in ways that often result in these conditions. The chemical drug thalidomide and the rubella virus are well known teratogens (causes of congenital abnormalities). Smoking and alcohol use by pregnant women are associated with increased risk of congenital abnormalities (*10*). Among the chemicals and metals that are known to cause abnormalities in animal fetuses, and that cross the placenta, are aluminum, benzene, cadmium, carbonyl, carbon tetrachloride, chromium compounds, copper, 4-dimethylaminoazobenzene, 2,3-dinitrophenol, fluorine, formaldehyde, lead, malathion, mercury, nickel, nitrogen oxides, paraquat, parathion, polychlorinated biphenyls, and selenium (*11*). Pregnant women may be exposed to one or more of these chemicals as a part of their work environments or in food, air, or drinking water. The exposure of the fetus to ionizing radiation in the mother's work and other environments is also an important hazard.

The environmental pervasiveness of some of the materials on the above list is indicated by where they are found—in relatively high concentrations in some water supplies (aluminum), emitted from some industrial smokestacks (benzene), emitted from motor vehicle exhausts (lead and nitrogen oxides), in a commonly used garden insect spray (malathion), sprayed on marihuana in Mexico that is subsequently used in the United States (paraquat), in fish from contaminated lakes, and in eggs and beef in areas where animal food contained polychlorinated biphenyls. It is also conceivable that men exposed to certain chemicals or metals could experience alteration of sex chromosomes or transmit the hazardous agents that contribute to congenital anomalies and cancers in their children. The possibility is being investigated that 2,4,5-T esters, used widely in the Vietnam war as herbicides, have contributed to spontaneous abortions and birth defects of children of veterans exposed to the chemicals. In the meantime, they have been banned for some applications but are still used for others (*12*).

The accumulation of certain chemicals in fatty tissues means that exposure to very small amounts over sufficient time can result in the buildup of toxic doses. A number of fat-soluble chemicals have been banned from use by the Environmental Protection Agency (e.g., DDT, aldrin, dieldrin, heptachlor, chlordane, and benzene hexachloride). Nevertheless, these chemicals remain in the environment from past use (and use in other countries) and human exposure occurs in food and drinking water. Studies of the breast milk of nursing mothers have revealed that the majority have one or more of the chlorinated hydrocarbons in detectable amounts in their milk. Thus, the fetus may be exposed in utero by passage across the placenta, and the newborn begins life with the high probability that such chemicals are in its diet, either in breast milk or other foods (*13*).

Chemicals known to be carcinogens (cancer-causing agents) and teratogens are being found on ground surfaces and in streams and ground water from old chemical waste dumps—some near homes and school

playgrounds. Asbestos particles that cause cancer and other equally severe diseases have been found in the air in schools and other buildings where asbestos was used in building materials. Respiratory illnesses are more frequent in areas with high concentrations of air pollutants such as smoke and sulfur dioxide (*14*).

In addition to the contribution of environmental factors to death, disability, and disease, the physical environment is increasingly being implicated in intellectual and behavioral disabilities traditionally considered peripheral to health and presumed to be caused by inherited limitations or social conditions. Needleman, *et al.*, compared school children with high and low accumulations of lead in shed "baby teeth" on a number of achievement and behavioral factors. The children with high lead content had significantly lower scores on a number of indicators of intellectual performance compared to the children with low lead content. Teacher ratings of behavioral problems (including distractible, not persistent, dependent, hyperactive, impulsive, frustrated, and unable to follow simple directions and sequences) increased with higher concentrations of lead in the children's teeth. Statistical controls for 39 variables from the children's social and medical histories did not explain the intellectual and behavioral differences in children with high and low accumulations of lead (*15*).

Lead in concentrations sufficient to produce gross impairment and death is thought to occur mainly as a result of children ingesting lead-based paint chips and plaster in deteriorated houses and other buildings. However, most of the children in the Needleman, *et al.*, study did not have a history of lead poisoning or live in or near deteriorated buildings. The lead more likely was in their food, water, or in the air they breathed, and in dirt on sucked thumbs and under bitten fingernails.

Milk, fruit juices, and other foods stored in soldered cans have been found to contain lead (*16*). The extent of the release of lead into water and air from industry and motor vehicle exhausts has been traced historically by examination of layers of ice in Greenland where lead concentrations are found in association with the industrial revolution and, in this century, with the use of lead as an additive in gasoline. The fact that lead and other metals and chemicals are rapidly accumulating in such isolated environments illustrates the pervasiveness, magnitude, and international nature of environmental hazards (*17*).

Ecologic systems are complex and there are short- and long-term interactions among what may first appear to be independent groupings of factors. Ionizing radiation can alter genetic material; persons injured by mechanical or thermal energy and those who are malnourished are more susceptible to infection by biologic agents; increased survival of populations without commensurate reduction of births will lead to more people than can be supplied with food in the long run, and population density contributes to pollution and stress, which may increase susceptibility to illness in the short run.

The emphasis on the current predominant causes of death to children nationwide should not detract from an equal emphasis on some very old problems. Although poor sanitation, which contributed substantially to deaths historically, has been greatly improved in most areas, it should be

noted that such problems remain potentially hazardous in some places. Members of the Select Panel and consultants were appalled to observe homes of people in poverty in rural Mississippi with no privies (even outdoors) and no source of potable water in reasonable proximity to the homes. The acuteness of some of the hazards noted vary from area to area depending on socioeconomic and other conditions, and such variation should be taken into account when priorities for amelioration are considered.

PRINCIPLES OF DISEASE AND INJURY CONTROL

To attempt to control the diseases and injuries that currently kill and disable children, one must first believe that they are controllable. Human history contains virtually every variety of belief about the origins of diseases and injuries and the means, if any, of controlling them. Widespread belief that diseases and injuries were of supernatural origins too often have been replaced in some circles with the belief that some diseases and injuries of known origin must be accepted as unfortunate but inevitable side effects of a free and economically strong society.

The control of most of the epidemic diseases that commonly killed and crippled children and adults alike for thousands of years contributed greatly to the disillusion of the notion of the inevitability of widespread suffering and premature death. This is a very recent phenomenon in the context of human history. Only within the 20th century does a newborn infant in the United States have a better than three in four chance of surviving to his or her 20th birthday. By midcentury the chance of survival to age 20 had increased to 95 percent and has recently continued to improve (*18*).

Epidemiologists, who study disease and injury patterns in populations, enjoy debating whether the greatly reduced death rates of children in the last hundred years or so were mainly a result of scientific discovery of disease agents and deliberate measures to control them or mainly a side benefit of changes in sanitation, water supplies, and other aspects of the environment—changes that were sometimes undertaken for reasons other than health. Whatever the answer, the scientific specification of damaging agents and the changes in environments, certainly deliberate in many cases (*19, 20*), that have dramatically reduced the damage of these agents, support the conclusion that deliberate action against the old and new maladies can be effective.

Two important lessons are to be learned from the history of attempts to improve public health: (1) It is not necessary to completely understand all of the causes of a particular type of damage before action to ameliorate the damage can be taken. (2) Attempts at amelioration can have harmful as well as helpful effects, and, therefore, it is as important to study scientifically the effects of ameliorative efforts as to research the causes of diseases and injuries.

An illustration of effective action based on incomplete information occurred in 1854 when John Snow discovered that cholera was a water-borne disease by comparing the number of cases that occurred among

populations using separate water supplies. The bacterium that does the damage was not isolated until 1883, but Snow's discovery led to a cleanup of water supplies in some communities and the 1866 cholera epidemic in the United States was much less severe than those of 1832 and 1849 (*19*).

That adverse effects can occur as a result of intervention when a cause of a disease is known was illustrated in attempts to control bubonic plague after the plague bacillus was isolated. The bacillus is transmitted to humans by bites from fleas that usually live in the fur of certain species of animals, mainly rats. Attempts to control the plague bacillus in some cases included the flooding of drains with disinfectants that drove flea-carrying rats into homes, increasing exposure of inhabitants to the bacillus and resulting in more deaths (*21*).

The nonexistence or extreme rarity in the United States of incidence of diseases caused by many biological agents that plagued human populations throughout recorded history speaks to the eventual success of environmental change and scientifically based public health measures. The challenge today is to conquer the remaining harmful biological agents and to use the principles learned in past public health successes and failures to reduce the incidence and severity of disease and injury caused by nonbiological agents and processes in modern environments.

Effective and permanent reduction of a particular disease or injury can occur when a particular type of cause is identified and when the means to change that cause are available. The most important set of "causes" of disease and injury from the point of view of prevention are those conditions that, if changed, would result in the disease or injury not occurring.

For example, bubonic plague does not occur in the absence of the plague bacillus, or the fleas, or the flea-carrying animals; or, to take the current leading cause of death of noninfant children, severe motor vehicle injuries would not occur if motor vehicles were designed and manufactured with technology that would prevent crash forces from exceeding the injury tolerance of vehicle occupants and pedestrians (*22*). Note that the elimination of the "causes" that increase the probability of motor vehicle crashes, such as excessive alcohol use, would not eliminate the problem, although if the causes could be substantially controlled the problem would be reduced. The physics of crash forces are known and the forces can be controlled. The factors that contribute to heavy drinking are not well understood and attempts to control such drinking have not had any sustained success (*23–25*).

AMELIORATIVE OPTIONS

Having identified one or more conditions that, if altered, could eliminate or substantially reduce particular human damage, the next step is to identify the alternative ways of controlling the conditions. William Haddon, Jr., has enumerated 10 logical options, originally suggested mainly to reduce human injury from interaction with various types of

energy—mechanical, thermal, radiation, etc. (*26*), and recently more generally applied to all hazardous agents (*27*).

The following is a list of the Haddon options and illustrations of their sometime use or possible application to major hazards to child health:

- "Prevent the creation of the hazard in the first place."
  - —Provide potable water and facilities for sanitary waste disposal in all dwellings where there are children.
  - —Stop the extraction or production of teratogenic and carcinogenic chemicals.
  - —Do not use flammable materials in dwelling units and children's institutions, furniture (particularly bedding), and clothing.
  - —Do not manufacture handguns.
- "Reduce the amount of the hazard brought into being."
  - —Reduce designed top-speed capability of motor vehicles.
  - —Alter transportation of children from cars, trucks, and vans to less hazardous buses, trains, and commercially scheduled airplanes.
  - —Raise the age of driver licensure to 18.
  - —Reduce temperatures to below scalding levels in water heaters.
  - —Reduce the hardness of playground surfaces.
  - —Reduce incentives for extraction of hazardous substances such as depletion allowances in the tax code for newly mined lead.
- "Prevent the release of the hazard that already exists."
  - —Filter biologic pathogens and teratogenic and carcinogenic chemicals from drinking water.
  - —Impound nuclear and chemical waste.
  - —Increase road skid resistance.
  - —Keep all guns locked up at supervised hunting and target ranges.
  - —Use childproof matches and lighters.
- "Modify the rate or spatial distribution of release of the hazard from its source."
  - —Increase the use of child restraints and seatbelts in transportation vehicles.
  - —Build or modify storm drains to make them adequate to prevent the accumulation of water.
  - —Use flame retardant materials that do not contain carcinogens, teratogens, or give off toxic fumes in homes, children's institutions, and vehicles.
  - —Make containers for hot liquids (cups, coffee and tea pots, etc.) with large bottoms and centers of gravity such that likelihood of spillage is minimized.
- "Separate, in time or in space, the hazard and that which is to be protected."
  - —Quarantine persons with influenza.
  - —Build pedestrian overpasses and underpasses on roads, especially in areas with large numbers of children.

—Designate separate roads for travel by cars and by heavier vehicles.
—Build bicycle paths separated from streets and highways.
—Build playgrounds at a distance from streams or reroute streams from play areas.
—Remove children or abusing adults from homes where children are abused.
—Restrict target shooting and hunting to unpopulated areas.

- "Separate the hazard and that which is to be protected by interposition of a material barrier."
  —Install air bags in new cars.
  —Install energy-absorbing material around fixed objects on roadsides where vehicles most commonly leave the road and hit the objects.
  —Use helmets and energy-absorbing padding when riding motorcycles and bicycles, when skiing, and when playing contact sports.
  —Use closures on poison containers that cannot be opened by children.
  —Confine teratogenic and carcinogenic chemicals and radiation to closed systems.
  —Use well-insulated fireplace covers.
  —Install fences around swimming pools with gates that cannot be opened by children. Similarly, cover wells, irrigation and drainage ditches, and culverts in ways that children cannot enter them.
- "Modify basic qualities of the hazard."
  —Use utility and light poles along roadsides that "break away" when struck by motor vehicles.
  —Prohibit hard surfaces, sharp points, and edges on interiors of transportation vehicles and on bicycles, stairs, furniture, toys, sports equipment, playground equipment, and the like.
  —Use soft materials on the front ends of motor vehicles.
  —Make cigarettes self-extinguishing.
  —Use cribs with gaps between slats too narrow for infants' heads to be engaged in the slats.
  —Develop emetic coatings for drugs in amounts that have no effect at prescribed doses but induce vomiting at poisonous doses.
  —Make toys and other objects large enough that children cannot get them lodged in their throats.
  —Allow only rubber bullets (such as the kind used in some countries for riot control) to be sold in the calibers used in handguns.
- "Make that to be protected more resistant to damage from the hazard."
  —Immunize children against the diseases that remain a threat and for which safe and effective means of immunization are available.
  —Immunize young women against rubella before pregnancy.

—Provide blood clotting factors to children with hemophilia.
—Install gas tanks and containers for transporting other hazardous materials that do not rupture in crashes.
—Use fluoride in water in amounts that prevent dental decay.
—Require children to perform warmup exercises before vigorous play and athletic competition, and prohibit schools from allowing those in athletic competition from "playing hurt" or playing when out of condition.

- "Counter damage already done by the environmental hazard."
  —Increase numbers of emergency roadside telephones.
  —Provide for strategically placed quick rescue and emergency medical response.
  —Train the population in special techniques of resuscitation of children.
  —Install smoke detectors in all dwellings.
  —Install fire extinguishers in all buildings.
  —Restore severed limbs.
- "Stabilize, repair, and rehabilitate the object of the damage."
  —Increase special job training for disabled children as they approach adulthood.
  —Provide for rehabilitative and cosmetic surgery.
  —Make burn centers accessible to those needing them.
  —Provide aid to those whose families cannot support their therapy or basic needs.

Other possibilities have been suggested by Haddon and others (*26–31*), but these are the most relevant to children. The great value of the Haddon options analysis is that one's attention is forced to the various stages in disease and injury processes where intervention is possible, without becoming bound up in the muddy concepts of multicausal webs that have led some scientists and others to be excessively cautious in prescriptions for amelioration.

EFFECTIVENESS AND COSTS

Having specified the frequency and severity of children's diseases and injuries and the wide range of options for their amelioration, the choice of actions to be taken can be made on the basis of criteria for effectiveness and costs. Ideally the goal of disease and injury prevention is to reduce the incidence and severity of human damage to the maximum extent with the resources available. If one knew the effectiveness of each option that could be employed as well as the costs of each option, and had the power of decision, one could allocate resources accordingly. However, effectiveness involves more than whether or not a specific technology works theoretically or in a laboratory, and resources available may vary depending on who is providing them and for what purpose. No one entity, including the Federal Government, has unencumbered power to decide how resources are to be allocated. Nevertheless, some principles for estimating effectiveness of preventive strategies are emerging from

research and can be used to allocate resources available within the range of power of a given decisionmaker.

To be effective, a preventive strategy must do what it is intended to do and be used correctly. The strategies that have been the most successful are those that work automatically, without any action on the part of the person being protected (*32, 33*), which, in the case of children, usually includes the child and the family. Susan P. Baker has noted how slow we have been to learn this principle:

> [A]s long as we place responsibility for childhood injury prevention on children and their parents, potential solutions that have not been implemented in 1979 will still be largely unused in the year 2000, and easily preventable deaths and injuries will continue to occur. A comparable error earlier in this century caused thousands of children to contract typhoid fever, tuberculosis, scarlet fever, diphtheria, and other milk-bourne diseases, because their protection had depended on their parents either choosing the right kind of milk or 'pasteurizing' it themselves. Tragically, these illnesses and deaths from milk-bourne pathogens continued for decades after it was known that they could be prevented by requiring all milk to be pasteurized before being sold to consumers (*34*).

Estimates of effects of strategies that do not work automatically—often called "active" strategies—must take into account the extent to which the strategy will go unused or be misused. Among the factors that are known to reduce effectiveness because of individual inaction are the frequency with which the action is necessary, the amount of effort required in the action, the discomfort or inconvenience entailed in the action, and costs of the action (*33, 34*).

For example, a car seat or bed especially designed for protection of small children in crashes, or the correct use of seatbelts at 1 year of age or older, would reduce the vehicle occupant deaths of children by more than half. However, despite the fact that the vast majority of people know that they are safer in seatbelts (*35*), less than one in five drivers uses them, and 93 percent of children less than 10 years old are unrestrained when traveling in cars. Even when parent drivers are using seatbelts, more than 75 percent of the child passengers are not restrained (*36*). A program that included donation of free infant carriers to parents with newborns and literature on their use resulted in only a few percentage points increase in use observed at age 2–4 months (*37*). Thus, the real effectiveness of child restraints is only a small fraction of their potential effectiveness because they must be used frequently and at some effort and inconvenience, as well as possible discomfort to an active child.

Meanwhile, the automatic means to protect children traveling in motor vehicles or struck by them that do not involve action, inconvenience, and discomfort are unavailable—vehicle interiors with no protruding knobs or hard surfaces and edges that increase the severity of injury in crashes; doors that cannot be opened by a child while the vehicle is in motion; soft front ends rather than the hard and sometimes pointed edges aimed at

heads of child pedestrians; and air bags that inflate in moderate to severe frontal crashes.

In the early 1970's, rather than build into their vehicles automatic crash protection that went beyond current Federal standards, manufacturers pushed irritating buzzer "reminders" to use belts, and cars that would not start with belts in stowed positions. Negative public reaction resulted in the misconception among some Congressmen (*38*) and others that the public does not want safety regulation when, in fact, the public's desire for and willingness to pay for automatic protection is high (*39*). What the public does not want is discomfort or inconvenience.

Assessment of choices among options frequently fails to account for the real, as opposed to theoretical, effectiveness of a measure. For example, the U.S. Department of Transportation report on national highway safety needs claimed that the enactment of laws requiring seatbelt use in motor vehicles would result in a 40-percent reduction in deaths of vehicle occupants, based on the theoretical effectiveness of belts in moderate to severe crashes (*40*). However, it was known at the time that report was written that the most successful belt use law anywhere—in Australia—had produced a 20-percent reduction in occupant deaths in urban areas and a 10-percent reduction in rural areas (*41*). The difference in the theoretical and actual effectiveness of the law occurred because many people do not use the belts properly, and groups that are more likely to be involved in crashes, such as teenagers, are less often using belts in compliance with the law (*42*).

Thus, belt laws have an effect on death reduction and should be considered as an option until automatic protection is adopted that makes them no longer necessary. The fault of the Department of Transportation report was its portrayal of belt laws as an equally effective but less costly alternative to improved automatic protection in cars, when such laws were clearly not as effective as the automatic approach. In the case of child restraint use laws, the first State to enact such a law (Tennessee) included an exemption that would allow a child riding on the lap of an adult to travel unrestrained. This law has the potential for increasing childhood injuries in crashes. In a frontal crash the weight of the adult's body adds to the force of the child striking interior surfaces. In fact, child restraint use increased from 8 to 29 percent from before to 2 years after the Tennessee law was enacted, with little change in on-lap travel. Nevertheless, more than 70 percent of children are unrestrained despite the law (*43*).

Once a realistic assessment of the effectiveness of available strategies has been made, their costs can be estimated and resources can be allocated to minimize the consequences of diseases and injuries. Estimation of costs is sometimes as faulty as estimation of effectiveness. Many, if not most, of the present day hazards to children are results of human exploitation of certain raw materials or the finished products of that exploitation. Processors of raw materials and manufacturers of finished products often strongly resist any strategy that would increase their costs and the costs of their products. Even when governmental regulations do

not add to costs, processors and manufacturers are often resistant to regulation because they do not believe that the Government should have the right to interfere in their businesses (*44*).

Government and business estimates of the costs of modification of processes and products to make them less hazardous sometimes differ many fold. By using accounting methods that amortize certain costs over different periods than usual or add costs that are unnecessary, as automobile manufacturers did in estimating costs of increased automatic crash protection (*45*), a strategy can be made to look much less cost-effective than it actually would be if implemented.

The authority of the Government to impose regulations to protect public welfare is embedded in the U.S. Constitution and has been repeatedly upheld by the courts. However, the point beyond which a regulation is too costly has not been established. Some economists argue that costs should not exceed benefits (*46*), and Government agencies have experienced increasing pressures in recent years to justify their actions by cost–benefit analyses.

In addition to the problems of estimating costs and effectiveness of a given strategy, cost–benefit analysis must cope with the problem of placing dollar values on the benefits of reduced disease, injury, disability, and death. Even when the effectiveness of a strategy in reducing a hazard is known precisely and the costs of the strategy are reasonably assessed, the benefit–cost ratio (or more appropriate differences between costs and benefits) can be made to look unattractive by reducing the estimated dollar value of the benefits. Whether a strategy is considered cost-beneficial then becomes a matter of how much a life (or an eye or an arm) is worth in dollars.

Economists can come up with dollar values of life and limb by making various assumptions about foregone earnings, costs of maintaining families when breadwinners are killed, disabled, or unable to work for a time and the like (*47*). However, these calculations do not deal adequately with the basic underlying issue of human values. The assumption that costs should not exceed benefits is a value judgment that assumes that the American people are unwilling to contribute more to reducing disease and injury than the diseased and injured would return to the economy. If that value judgment were uniformly applied, no public funds would be expended for medical care of children with congenital abnormalities serious enough that their economic productivity, if any, would produce no net return to the economy.

Clearly, the fact that public moneys are expended to care for those children who will not provide an economic return is evidence that society does not demand that the measurable benefits of such care exceed the costs, at least when the persons affected are readily identifiable. However, in the case of most environmental hazards, the affected lives are called "statistical lives" by economists—meaning that the individuals who will be affected are not easily identified. Apparently, their lack of identifiability rather than their intrinsic value makes these lives more conducive to benefit–cost analyses and decisions. Their lack of identifiability perhaps also results in a disproportionate share of resources being allocated to

attempting to treat the damage once it has been done, and the person affected is thus identified, rather than to preventing the hazard.

When the public understands the application of benefit–cost analysis in specific cases of identifiable consequences, it is appalled. For example, in one of the cases involving a teenager badly burned because of an easily damaged gas tank in a Ford Pinto, the jury was informed that the company knew of the fire hazard from leaking gasoline in Pinto crash tests and had rejected the use of available methods to prevent it on the basis of a benefit–cost analysis. The company had decided that an extra cost of about $10 per car would not equal the benefits in reduced burn injuries and deaths that would be realized (*48*). The jury, aware of this evidence, awarded the burned plaintiff $128.5 million, which was later reduced to $6 million.

In less well-known cases, governments have added to the costs of amelioration of environmental hazards by requiring expensive economic impact statements and benefit–cost analyses for each decision to be made rather than applying general principles. For example, more than one-third of motor vehicle fatalities and severe injuries occur when vehicles leave the road and strike rigid objects—trees, utility poles, bridge abutments, and the like—which are often only a few inches or feet from roadsides; this situation would not be tolerated if the objects were on airport runways. Removing these objects, changing those that can be modified to break away on impact, or placing energy-absorbing materials between them and the road would greatly reduce the human damage. State highway departments have made some such changes, partly in response to the availability of Federal funds for that purpose. However, known principles for selecting sites for ameliorative action have not been widely applied. It has been established by research that severe fixed-object crashes are many times more likely within 500 feet of curves greater than six degrees, on downhill grades of greater than 2 percent, on nonlocal roads, and that such sites are only a small proportion of such roads (*49*). Rather than using that information, highway departments have expended substantial sums for roadside surveys of all fixed objects and for cost–benefit analysis of fixing *each site* that is considered.

There is, of course, an upper limit on the resources that can be used to prevent or treat disease and injury without severely affecting other human wants and needs. Some economists and others argue that consumers decide by their choices in the marketplace what they are willing to pay for the amount of risk they are willing to take, and that the Government role should be limited to informing consumers of the risks associated with particular products (*46*). This assumes that those who make the purchases are the same individuals who are taking the risk and that the marketplace will always provide the less hazardous processes and products so that consumers have the choice. Neither of these assumptions is valid.

People who consume teratogens or carcinogens in air and water are often not the same people who purchase the products of the processes that contaminated the air and water. Children especially are not usually party to decisions about purchase of much of their food (certainly not when in utero or infancy), their cribs, their medicines, or the vehicles in which they

will ride, even if they could be taught the hazards involved. One study of people in car crashes estimates that 80 percent of the people of all ages injured as drivers and passengers were not the original purchasers (*50*), and certainly the pedestrians struck by motor vehicles had no say in the hardness or shape of the vehicle surfaces that determined the severity of their injuries.

Nor has the marketplace always responded with less hazardous processes and products even in the face of known consumer demand. For example, air bags that reduce severe and fatal injuries in frontal car crashes by 40 percent were developed and tested in the 1960's and were available for production in the early 1970's. Edward N. Cole, the president of General Motors at the time, promised them on all 1975 General Motors cars. However, they were only offered on a few of the most expensive Cadillacs, Oldsmobiles, and Buicks in 1974–76 with virtually no advertising of their availability. Consumers attempting to purchase them experienced substantial dealer resistance and delays in delivery (*51*). Despite this, about 10,000 air-bag-equipped cars were sold to the public (1,750 had been sold to private fleets previously), mostly in 1974. Following Cole's retirement in that year, air-bag production was phased out.

One possible reason for Cole's interest in the air bag was marketing research by General Motors that indicated that consumer demand for the air bag would be high. That research done in 1971 did not come to public light until 1979. New car buyers were shown air bags and automatic belts in cars, film showing air bags and belts in crash tests, and favorable and adverse publicity on air bags. The study states that

> [C]onsumers are *overwhelmingly in favor of some kind of occupant restraint system*..., [are] not scared off the Air Cushion concept and that *the Air Cushion Restraint concept is a viable one* to the consumers.... After seeing prices quoted, which were higher than those which respondents expected, and had a slight dampening effect—the Air Cushion still maintained half of all preference votes.... (emphasis theirs) (*52*).

Why Cole's successors ignored that study and phased out the air bag is not known publicly but it was most certainly not because of a lack of consumer demand for increased crash protection. General Motors claimed that delays in offering air bags were because of an alleged potential hazard to out-of-position children. However, examination of children that were standing in front of the dash or sitting on midseat arm rests when air bags deployed in crashes revealed far less injury than would be expected in crashes of similar severity without air bags. General Motors subsequently announced that the problems of out-of-position children had been solved, but later announced that air bags would not be offered soon.

Despite the evidence that those who process or produce hazardous products do not always act in their own best economic interests, there is merit to the argument of many economists that Government has not considered adequately the use of taxes, fees, or other economic incentives for use of less hazardous processes and products as an alternative or supplement to direct regulation (*53*). For example, the Government has required vehicles to be able to operate on unleaded gasoline but some motorists use leaded gasoline in their new cars, destroying antipollution

equipment and continuing to emit lead from their exhausts, because unleaded gasoline costs more than leaded gasoline. Also, the depletion allowance in the tax code encourages the use of newly mined lead and other toxic materials rather than their recovery and reuse in ways that would not be as harmful as their release as waste in the environment.

Direct regulation of processes and products that engage large numbers of companies or local governments (as in waste disposal) often meets with the same kind of response as the regulation of individual behavior discussed earlier. Companies and local governments do not like to be inconvenienced any more than do individuals. In many cases it may be more effective to charge a tax or fee for disposal of wastes. Such fees would be prorated so that the economic incentive would be to minimize use and disposal of hazardous materials rather than to attempt to direct each company or government as to when, where, and how hazardous wastes are to be handled.

To the extent that the costs of alternatives to waste disposal vary greatly among waste dischargers, a fee or tax system theoretically would be more efficient. Those whose costs would be less to treat or reuse wastes in nonhazardous ways would do so rather than pay the fee. Those whose costs would be very high would choose to pay the fee and continue to pollute but, if the fees were set appropriately, there would be less total pollution at much less cost than if everyone had to meet the same standard. The cost of governmental monitoring of hazards would be the same in a direct regulation or an incentive system (*53*).

Whatever the strategy adopted to minimize hazards, reduce costs, or both, the principle that the consequences should be studied to ensure not only that the strategy is working as planned, but that no unanticipated harmful "side effects" are occurring, bears repeating. A direct regulatory activity or an incentive system that sounds workable in a Congressional hearing will not necessarily be so in practice (*54*).

MAJOR LAWS AND PROGRAMS

Government is the primary social mechanism for reducing hazards that are inadequately perceived or not acted on by the public and that are unprofitable for action by involved companies without governmental standards or incentives. Those who object to the Government's role in such matters often do so on the grounds that it abridges human freedoms, at least in terms of use of resources, and takes responsibility for matters that people should look after themselves. In fact, if people had to be knowledgeable about every potential environmental hazard and had to take action on each one, they would have little or no freedom to do anything else; and, as noted previously, freedom of choice is often not available, especially for children.

Processors of raw materials, and designers and producers of products, could avoid some regulations and, in some cases, some long-run costs in recalls, litigation, and liability awards, if they would pay greater immediate attention to the possible hazardous ways in which materials and products will be used and eventually discarded. Often at no

additional cost, it is just as easy to make a product soft rather than hard; blunted or rounded rather than sharp; nonflammable or slow-burning rather than quick-blazing; chemically inert rather than toxic; or incapable of being swallowed by a child. Where modification of a process or product does involve costs that would put a company at a competitive disadvantage, governmental regulation should be welcome to the conscientious executive whose relative advantage would be the same if all similar businesses had to meet the same regulations and who could sleep well at night in the knowledge that danger had been reduced or avoided.

To many, these statements may be self-evident, but in an era of anti-Government and antiregulation hysteria in some circles, their restatement is in order. Part of the problem is the misperception that Government is ineffective. Some of the successes of Government in reducing hazards to health are not widely known; the mention of a few should illustrate the point. Sanitation standards and immunization programs of Federal, State, and local governments virtually eliminated the harm done by many biological agents and greatly reduced others. Poisonings of children by drugs and household products regulated by the Consumer Product Safety Commission have decreased 25–35 percent in association with regulation, compared to a 20-percent increase in ingestions of and poisonings by an unregulated group of products (*55*). A reduction of 40 percent in crib-related injuries accompanied the Commission's programs and regulations regarding children's cribs (*56*). Children's falls from windows in multilevel dwellings decreased by 50 percent when New York City required landlords to install devices on windows that make it difficult for young children to crawl out (*57*). State laws requiring installation of seatbelts in cars reduced occupant deaths 10–20 percent in the early 1960's, and the initial Federal Motor Vehicle Safety Standards for cars reduced occupant deaths an additional 23 percent (*58*) and all severe occupant injuries by 25–30 percent in the late 1960's and the 1970's (*59*). Unfortunately, those standards have had no effect on pedestrian deaths (*58*). Part of the lack of knowledge of the effectiveness of recent governmental health and safety laws and regulations is that they have been phased in over time and, when enough time has passed, the outcomes have not been evaluated on the assumption that everything is all right because a law was passed and regulations were promulgated.

The effects of laws directed to the control of teratogens or carcinogens are not easily realized because of the difficulty of identifying the agents and their routes of exposure. The consequences of teratogens may not be seen for months or years and, in the case of carcinogens, the delay between exposures and manifestations of the disease can be many years—complicating both the specification of exposure in causation or lack of exposure in amelioration. The need to rely on mutagen and animal studies leads to major controversies regarding their applicability to human populations.

Numerous Federal laws have been enacted with the aim of reducing environmental hazards, particularly within the past 15 years. The laws vary widely in the specificity of the hazards to be reduced, the methods to be used to reduce them, limits on the authority of the implementing agencies, and degree of consideration of costs (*60*). Some of the major

laws aimed at environmental hazards and the agencies authorized to implement them are listed in table 3. In a survey of 17 agencies undertaken for preparation of this report, a question was asked regarding need for new legislation. None of the agencies claimed to need new authority to combat the hazards in its purview.

Although the overall thrust of the cumulative legislation is ambitious, if not exhaustive, the inherent lack of a priority scheme in the piecemeal approach leads again to the question of whether resources are being optimally or even reasonably allocated according to the contribution of given hazards to disease and injury. The major laws directed at pollution of air, water, and land contain a mixture of goals—reduction of hazards to health, protection of flora and fauna, and aesthetics. Brown haze over cities, brown rivers, and cluttered landscapes are evident to all but the most insensitive observers. However, the degree to which pollution is observable is not necessarily indicative of its hazard to human, plant, or animal health. Some of the most lethal substances are colorless, odorless, and tasteless (*61*). Part of the criticism of the laws in question is that too many resources are being expended to achieve aesthetically pristine air, water, and land at the relative neglect of health hazards. For example, the

TABLE 3. Federal Laws Directed at Major Environmental Hazards and Federal Agencies Primarily Authorized to Implement Them

Law	Agency
Clean Air	Environmental Protection Agency
Water Pollution	Environmental Protection Agency
Resource Conservation and Recovery	Environmental Protection Agency
Insecticides, Fungicides, and Rodenticides	Environmental Protection Agency
Toxic Substances Control	Environmental Protection Agency
Motor Vehicle Safety	National Highway Traffic Safety Administration
Highway Safety	National Highway Traffic Safety Administration and the Federal Highway Administration
Hazardous Materials Transportation	Materials Transportation Bureau
Food, Drugs, and Cosmetics	Food and Drug Administration and Department of Agriculture (food)
Occupational Health and Safety	Occupational Safety and Health Administration
Consumer Product Safety and specific laws regarding hazardous substances, poison packaging, flammable fabrics, and refrigerators	Consumer Product Safety Commission
Public Health and Welfare, various provisions for safe drinking water programs, communicable disease and immunization programs, rodent control, lead-base paint poisoning, and the like	Certain duties assigned to some of the above agencies and the Department of Health, Education, and Welfare (recently changed to Department of Health and Human Services) and the Department of Housing and Urban Development (lead)

cost of making rivers odorless, swimmable, or supportive of marine life in certain areas is very high (*54*). Achieving these more easily observable goals may be politically appealing but it does not guarantee that drinking water taken from these sources will be safe even after currently used treatment methods are applied. Teratogenic, carcinogenic, and otherwise hazardous substances may remain in the water or may be dumped in places where human exposure is increased.

The progression of new legislation and amendments to the old reflects some realization of such problems. Title II of the Resource Conservation and Recovery Act of 1976 specifically states that the Clean Air Act and the Water Pollution Control Act resulted in increases in solid wastes dumped on land. The Safe Drinking Water Amendments of 1977 direct the Environmental Protection Agency to conduct studies of chemical interactions and substances in drinking water that are suspected teratogens and carcinogens.

A number of interagency groups have been formed in an attempt to establish priorities, clarify policies, and coordinate regulatory activities—the Presidential Regulatory Council, the Interagency Regulatory Liaison Group, the Toxic Substances Strategy Committee, and the National Toxicology Program. The Presidential Regulatory Council recently issued some important policy statements regarding carcinogens: (1) Highest priority should be given to substances that pose higher risk and to which people are most likely to be exposed. (2) Special populations such as children should be considered. (3) Regulations should include estimates of reduction of risk of cancers and increases or decreases in other types of risks that would result from the regulations. The Council's report also seeks to clarify some important facts regarding cancers. A substance that causes cancer in animals or is mutagenic is very likely to cause cancer in humans even though the route or amount of exposure is different. Among known carcinogens, it has not been possible to establish that there are absolutely safe levels of exposure. However, only 7 percent of some 7,000 substances tested were found to be carcinogenic even in large doses, which indicates that the common view that carcinogens are too many to be controlled is not justified by the facts (*62*).

Substantial evidence exists that children have not been given adequate special consideration in efforts to reduce environmental hazards. This lack has been noted by Dorothy Kane: "Not much is known about the quality of air at or near ground level because devices used to measure air concentrations are rarely placed at the height of a young person's face. However, gravity forces many of the heavier and often more toxic particles to the ground (or floor)."(*63*) Also, because of the breathing rates of children at rest and the greater activity of children, "under comparable exposure, children apparently inhale two to three times as much of a pollutant per unit of body weight as do adults."(*64*)

Claims have been made that known carcinogens such as chlorinated hydrocarbons (which have been found in breast milk) and certain pesticides can be removed from drinking water by activated charcoal filters for about 7 cents per month per person served (*65*). If that is true, and even if the cost were higher, governments with jurisdictions over the

water supplies surely would have the support of their constituents in adopting the use of such filtration systems.

If a tolerance level of exposure to carcinogens (and teratogens) cannot be established, the notion of tolerance levels for such substances used by various agencies in allowing the substances in food, drinking water, or air is not justified. The goal should be to eliminate exposure to teratogens and carcinogens in these media as well as hazards to reproductive tissue and the fetus in workplaces, and the means of reaching the goal should be under constant review. One recent report on food contaminants states that "there is no requirement for review of an action level once it is established. Thus, FDA (Food and Drug Administration) is under no pressure to actively seek new data to verify the appropriateness of an existing action level."(*66*)

For years Allen V. Kneese and colleagues have been advocating that "materials balance" accounting would reveal the extent of hazardous materials in the environment and have suggested points at which the most effective and economically efficient controls could be applied (*53, 67–68*). Such an accounting would include the amounts of materials extracted that are hazardous or made hazardous by their processing, the flow of the materials through the economy, the amount discharged into air, water, and on land at each stage of the process from extraction to final use, and disposition when no longer used.

Some such accounting is being done; for example, a report on arsenic was recently released (*69*). However, that report noted that the information is incomplete partly because there is only one domestic producer. Present law does not require reporting if there are three or fewer producers of a substance, supposedly to protect companies from competitors who might gain advantage from such proprietary information. The tracing of hazardous materials in the economy by the agencies responsible should be accelerated, and the highest priority should be given to materials that are the most likely to be teratogenic, carcinogenic, or otherwise toxic to children. No company extracting, processing, or selling the processed material should be exempt from reportng the fate of such materials in its hands.

State and Federal legislators should review lists of materials that are teratogenic (*11*), carcinogenic (*70*), or otherwise hazardous to children (*71*), and systematically review the tax laws for points at which changes would provide incentives for reduced usage and disincentives for increased usage of such materials. Similarly, the laws regarding clean air, water pollution, waste disposal, and the like, should be reviewed for points at which economic incentives and disincentives could be used to reduce hazards. Any changes in the laws should provide for followup assessment of the consequences to ensure that anticipated effects have occurred and that unanticipated adverse consequences have not occurred.

Emphasis on the neglect of problems that are newly found, if not new, should not divert attention from some old problems that have not been completely solved. The 1970 Census found that one in five dwelling units was lacking in some plumbing facilities (*72*). In an affluent society, no child should have to live in a home without potable water or sanitary

waste disposal facilities. Owners of dwelling units housing children without such facilities should be required to install them. Where they cannot afford to do so, Government aid should be provided for that purpose, and no family should be denied rental of or be evicted from a dwelling unit by landlords to avoid the requirement.

The hard surfaces, knobs, and sharp or pointed edges on the interiors and exteriors of motor vehicles, and on bicycles, stairs, furniture, toys, sports equipment, playground equipment, playground surfaces, and the like, are common sources of injury to children (*73*). The agencies that have been designated to regulate the relevant products or environments (such as the National Highway Traffic Safety Administration, the Consumer Product Safety Commission, and Federal, State, and local recreation agencies) should consider adoption of child impact performance standards for surfaces that are frequently involved in injury to children. Such standards should be based on the best estimates of a margin of safety in managing the forces involved in child impacts and on knowledge of the degree to which the severity of the impacts can be reduced by modifying relevant surfaces.

Persons less than 18 years of age are prohibited by law from signing contracts, voting, and playing pinball machines; yet persons considered too immature for such activities are licensed to operate vehicles that so commonly kill and maim. Drivers less then 18 years old are involved in more than 4,000 fatal motor vehicle crashes each year. Driver education courses in high schools have been found to contribute substantially to that toll because 16–17-year-olds who take driver education in high school are licensed to drive earlier than they would be otherwise, but high school driver education does not reduce fatal crashes per licensed driver (*74*). In Connecticut, when driver education was eliminated from nine school districts, 75 percent of those students who would have been licensed at 16 or 17 after taking the high school course did not obtain licenses until they were 18 or older. There were substantial reductions in severe crash involvement of 16–17-year-olds per population of that age from those districts compared to little change in districts that retained the course (*75*). If the age of licensure were raised to 18, high school driver education would have no adverse effect. However, without an 18-year-old licensing age, Federal, State, and local taxpayers are being charged for a school program that increases the risk that they and their children will be injured by a 16–17-year-old driver. State Governments should consider raising the age of licensure to 18, and the Federal Government should consider prohibition of use of Federal funds for driver education programs in States where drivers are licensed before their 18th birthday.

The age of maturity is not the only factor associated with risk to children's health that is inconsistenly treated in law. Alcohol and cigarette use contributes to damage to the human fetus, cancer, and to various types of injuries. Alcohol is frequently involved in almost every type of injury, including homicide and suicide, and smoking is associated with fires that often kill or severely disable and disfigure children. Substantial proportions of young people who use these substances will become addicted to them. Government prohibits advertising of cigarettes and distilled spirits on television. Yet children are commonly exposed to

advertising of alcohol and tobacco in magazines, newspapers, and on billboards. In such advertising, alcohol use and smoking are pictured as glamorous and sophisticated activities that are an integral part of the good life. The Federal and State Governments should consider the prohibition of advertising of alcohol and tobacco in media that are distributed in their jurisdictions.

Laws uniformly prohibit homicide but only a few jurisdictions have significant laws to reduce the use and/or lethality of the weapons used to kill. The most commonly used weapons in homicides are handguns; they are used often in suicides (*9*) and are a frequent source of unintentional injury (table 1). Many of the intentional acts are committed in moments of temporary anger or depression and will not be repeated. The lethality of the act is as much or more a result of the lethality of the weapon as it is the intent of the user. As identified in the options analysis earlier in this paper, a number of ways can be employed at various levels of Government to reduce the availability and use of handguns and the lethality of the ammunition.

The kinetic energy of motor vehicles and their occupants increases exponentially as speeds increase. High speeds increase both the likelihood of crashes and the severity of injuries in crashes. The 55-mile-per-hour speed limit, adopted in 1974 to save fuel rather than for increased safety, resulted in about 5,000 total fewer deaths annually (*76*), and deaths of children were reduced proportionally (from 15,757 in 1973 to 12,914 in 1975, partly due to the speed limit and partly to vehicle safety standards). However, vehicles have long been and continue to be manufactured with speed capabilities far in excess of even the limits before the 55-mile-per-hour law. Not surprisingly, vehicles capable of such speeds are often driven at speeds above the legal limit. A policy more logically consistent and effective than speed-law enforcement would prohibit the manufacture of vehicles (other than emergency vehicles) that are capable of speeds above 60 miles per hour under standardized test conditions on level road surfaces. Such a standard would not only reduce death and injuries, but would conserve fuel as well.

It is unlikely that information available to legislators, the regulatory agencies, the regulated industries, or other groups will ever be so precise that the exact change in risk that would result from a change in law or regulations would be known in advance. This is particularly true when there are multiple sources of a hazardous substance such as lead (*77*). The process of establishing standards for environmental risks will continue to be a political process in which parties with various interests will support or oppose particular actions based on less than perfect information. Nevertheless, as noted in the earlier discussion of current causes of deaths, diseases, and injuries to children, the environmental conditions that lead to children's deaths and disabilities are becoming increasingly well known. That information, coupled with the earlier stated principles of the type of actions that are likely to be effective and publicly acceptable, gives substantial guidance to governmental and private attempts to reduce environmental hazards.

The adequacy of health and safety laws depends as much on the continued support of the legislators and Government executives when the

laws are enforced as it does on the content of the laws. Laws are necessarily vague in some respects. It is not possible for legislators and their staffs to be expert in every facet of the issues they must legislate. The wisdom of a law such as the National Traffic and Motor Vehicle Safety Act of 1966 is that it refrains from specifying that particular equipment must be used on motor vehicles and directs the Secretary of Transportation to set performance standards to reduce death and injury. For example, a performance standard for brakes would specify that a car must stop within a certain distance when brakes are applied at a certain speed but would not specify the type of brakes. Thus, the manufacturers are free to meet the standards using a variety of technologies, including new and perhaps less costly or more efficient technologies as they become available, without the necessity of changing the law. Substantial controversy remains over whether or not standards are too stringent or are ahead of effective and efficient technology, but the Congress and the public are usually better served when the Congress provides for performance rather than design or equipment standards.

The problem with Federal agencies authorized to implement legislation is usually not that they are too aggressive in health and safety regulation; often they have been less aggressive than the situation warranted. One critic has claimed that 23 of the 27 cases where carcinogens were regulated by the Federal Government from 1967 to 1977 resulted from petition or lawsuit by public interest groups, labor unions, environmental groups, and the like, rather than from within the relevant agencies (*78*).

Part of the governmental health and safety agencies' slowness to act is the fear of reversal of regulations, budget cuts, and other sanctions from legislators and elected executives when constituents complain that regulations are restricting their freedoms, hurting their businesses, causing unemployment, or causing greater energy use. There are occasions when some such effects occur but the arguments are more often used when other factors—lack of consideration of freedom lost by the dead and disabled, mismanagement, recession, failure to conserve energy—are the real issues. In its recent action to weaken requirements to increase automatic crash protection in cars by allowing purchasers freedom to choose nonautomatic restraint systems, the Congress failed to consider the research that found that 80 percent of the car occupants killed are not party to the choice of original equipment (*50*). Barry Commoner has observed that unemployment is considered a natural consequence of innovations that make industries obsolete but is viewed as more of an evil when a health or safety regulation results in a change that puts some people out of work. Much of such unemployment is temporary and the new jobs created in industries providing pollution control equipment, safety innovations, etc., are seldom considered in the argument.

The steel industry has argued that pollution abatement carried too great a cost in energy but the Environmental Protection Agency (EPA) found that the estimates were "greatly exaggerated because they are based on the most energy-intensive control techniques and do not consider the recycling of energy now wasted in heat and combustible gases."(*79*) Another EPA study found that a 15-percent recovery of solid wastes and use of burned solid wastes as a source of energy would result in a net

reduction in a number of significant environmental pollutants and energy conservation as well (*80*). For decades, the automobile industry carried on a horsepower race, with its enormous waste of fuel (in addition to the human damage both from high speeds and emissions of pollutants), and now argues against pollution standards because of slightly lower gas mileage associated with antipollution technology. The generation and release of energy most often increases hazards; the conservation of energy in most respects is likely to increase the health and safety of our children and ourselves. Too often facts such as these are ignored in the heat of debate on health, economics, and energy.

Recent years have seen substantial movement toward the reduction of environmental hazards to children as more has been learned about those hazards. This paper has indicated many additional options for further reductions of known hazards. However, the achievement of those reductions will require increasing vigilance by those concerned for children's health and safety as economic and energy crises deflect attention and resources from health and safety issues.

SUMMARY

Most childhood deaths are environmental in origin and most environments are subject to ameliorative changes. Inadequate socioeconomic and medical environments that affect neonatal deaths; mechanical, thermal and other forms of energy that kill by injury; teratogens and carcinogens that cause birth defects and malignant neoplasms all can be controlled.

The options available to prevent harmful interactions of children with environmental hazards range widely, including banning use of certain materials or products, modifying the materials or products in ways that make them less hazardous, separating children in time or space from hazardous agents, placing nonhazardous material between children and hazardous agents, and strengthening children's resistance to some agents.

Complete understanding of all of the causes of an injury or disease is not necessary for amelioration. Many hazardous agents can be removed or their harmful effects reduced by available options without understanding of the entire harmful process.

Ameliorative attempts can sometimes be ineffective or harmful and must be studied as vigorously as the causes of the disease or injury in question. The effectiveness of an ameliorative strategy must be judged not only on its theoretical or laboratory effectiveness but on its effectiveness in use. Strategies that work automatically with no action required by the child or family are usually more effective in practice than strategies requiring individual actions. Ameliorative strategies that require frequent, inconvenient, or uncomfortable actions of people are not only less often effective but sometimes create backlash against ameliorative efforts generally.

Minimizing costs of ameliorative efforts is desirable but uncertainty in assessing costs and expressing the value of life and limb in dollar terms, as is done in cost–benefit analyses, can lead to inhumane decisions. Although individuals, private companies, and governments do not always

act in ways that minimize their costs, economic incentives such as taxes or fees may be more effective and efficient than direct regulation when banning a hazard is unfeasible.

Children have not been given adequate special consideration in efforts to reduce environmental hazards. The special characteristics of children that make their exposures different from adults, and the environmental sources of those hazards, must be considered in Government and private health and safety programs if the consequences of the hazards are to be reduced.

Arguments that governmental programs and regulations do not work or are incompatible with personal freedoms or economic and energy goals are frequently based on false premises or inadequate information.

REFERENCES

(1) National Center for Health Statistics. *Vital Statistics of the United States, 1975, Volume 2, Mortality.* Washington, D.C.: U.S. Department of Health, Education, and Welfare, no date.

(2) Kraus, J. F., C. E. Franti, D. Richards, and N. O. Borhan. "Incidence of Traumatic Spinal Cord Lesions." *Journal of Chronic Diseases* 28: 471–492, 1975.

(3) Starfield, B. "Health Needs of Children." In *Harvard Child Health Project, Volume II, Children's Medical Care Needs and Treatments.* Cambridge: Ballinger Publishing Company, 1977.

(4) National Center for Health Statistics. *Acute Conditions: Incidence and Associated Disability.* Hyattsville, Md.: U.S. Department of Health, Education, and Welfare, 1978.

(5) Kleinman, J. C., M. G. Kovar, J. J. Feldman, and C. A. Young. "A Comparison of 1960 and 1973–74 Early Neonatal Mortality in Selected States." *American Journal of Epidemiology* 108: 454–469, 1978.

(6) Campbell, B. J. and D. Levine. "Accident Proneness and Driver License Programs." Chapel Hill: University of North Carolina Highway Safety Research Center, 1972.

(7) Haddon, W., Jr. and S. P. Baker. "Injury Control." In *Preventive Medicine,* 2nd ed. D. Clark and B. MacMahon, eds. Boston: Little, Brown and Company, 1980.

(8) Hassal, C. and W. H. Trethowan. "Suicide in Birmingham." *British Medical Journal* 1: 717, 1972.

(9) Newton, G. D. and F. E. Zimring. *Firearms and Violence in American Life: A Staff Report to the National Committee on the Causes and Prevention of Violence.* Washington, D.C.: U.S. Government Printing Office, no date.

(10) Miller, R. W. "Relationship Between Human Teratogens and Carcinogens." *Journal of the National Cancer Institute* 58: 471–474, 1977.

(11) Calabrese, E. J. *Pollutants and High Risk Groups.* New York: John Wiley and Sons, 1978.

(12) Gunby, P. "Dispute Over Some Herbicides Rages in the Wake of Agent Orange." *Journal of the American Medical Association* 241: 1443–1444, 1979.

(13) Harris, S. "Organochlorine Contamination of Breast Milk." Presented at the annual meeting of the American Public Health Association, New York, November 7, 1979.

(14) Holland, W. W. "Effects of Air Pollution on Children." *Pediatrics* 53: 839–841, 1974.

(15) Needleman, H. L., C. Gunnoe, A. Leirton, R. Reed, H. Peresie, C. Maher, and P. Barrett. "Deficits in Psychologic and Classroom Performance of Children with Elevated Dentine Lead Levels." *New England Journal of Medicine* 300: 689–695, 1979.

(16) Chilsolm, J. J., Jr. "Heavy Metal Exposures: Toxicity from Metal–Metal Interactions and Behavioral Effects." *Pediatrics* 53: 841–843, 1974.

(17) Lin-Fu, J. S. "Lead Exposure—A Reassessment." *New England Journal of Medicine* 300: 731–732, 1979.

(18) Preston, S. H., N. Keyfitz, and R. Schoen. *Causes of Death: Life Tables for National Populations.* New York: Seminar Press, 1972.

(19) Rosenberg, C. E. *The Cholera Years.* Chicago: The University of Chicago Press, 1962.

(20) Rosen, G. *A History of Public Health.* New York: MD Publications, 1958.

(21) Hirst, L. F. *The Conquest of Plague: A Study of the Evolution of Epidemiology.* Oxford: Clarendon Press, 1953.

(22) Haddon, W., Jr. "The Changing Approach to the Epidemiology, Prevention and Amelioration of Trauma: the Transition to Approaches Etiologically Rather than Descriptively Based." *American Journal of Public Health* 58: 1431–1438, 1968.
(23) Ross, H. L. "Law, Science, and Accidents: The British Road Safety Act of 1967." *Journal of Legal Studies* 2: 1–78, 1973.
(24) Ross, H. L. "The Scandinavian Myth: The Effectiveness of Drinking and Driving Legislation in Sweden and Norway." *Journal of Legal Studies* 4: 285–310, 1975.
(25) Zador, P. L. "Statistical Evaluation of the Effectiveness of 'Alcohol Safety Action Projects.'" *Accident Analysis and Prevention* 8: 51–66, 1976.
(26) Haddon, W., Jr. "On the Escape of Tigers: An Ecologic Note." *American Journal of Public Health* 60: 2229–2234, 1970.
(27) Haddon, W., Jr. "Advances in the Epidemiology of Injuries as a Basis for Public Policy." Presented at the annual meeting of the American Public Health Association, New York, November 6, 1979. *Public Health Reports*, in press.
(28) Baker, S. P. and P. E. Dietz. "Epidemiology and Prevention of Injuries." In *Management of Trauma*, 3rd ed. G. D. Zuidema, R. B. Rutherford, and W. F. Ballinger, II, eds. Philadelphia: W. B. Saunders Co., 1979.
(29) Feck, G., M. S. Baptiste, and C. L. Tate, Jr. "An Epidemiologic Study of Burn Injuries and Strategies for Prevention." New York State Department of Health, 1977.
(30) Haddon, W., Jr. "Exploring the Options." In *The Conference, Research Directions Toward the Reduction of Injury in the Very Young and Very Old.* National Institute of Child Health and Human Development, (NIH) 73–124. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1973.
(31) Haddon, W., Jr. "Reducing the Damage of Motor-Vehicle Use." *Technology Review* 77: 53–59, 1975.
(32) Haddon, W., Jr. and J. L. Goddard. "An Analysis of Highway Safety Strategies." In *Passenger Car Design and Highway Safety.* New York: Association for the Aid of Crippled Children and Consumers Union of the United States, 1962.
(33) Robertson, L. S. "Behavioral Research and Strategies in Public Health: A Demur." *Social Science and Medicine* 9: 165–170, 1975.
(34) Baker, S. P. "Childhood Injuries: Preventive Options." *Proceedings of the Conference on Childhood Accidents and Prevention*, Brisbane, Australia, September 20–22, 1979.
(35) Robertson, L. S. "Factors Associated with Safety Belt Use in 1974 Starter-Interlock Equipped Cars." *Journal of Health and Social Behavior* 16: 173–177, 1975.
(36) Williams, A. F. "Observed Child Restraint Use in Automobiles." *American Journal of Diseases of Children* 130: 1311–1317, 1976.
(37) Reisinger, K. S. and A. F. Williams. "Evaluation of Programs Designed to Increase the Protection of Infants in Cars." *Pediatrics* 62: 280–287, 1978.
(38) Motor Vehicle and Schoolbus Safety Amendments of 1974. *Congressional Record*, pp. H8119ff, August 12, 1974.
(39) Robertson, L. S. "Car Crashes: Perceived Vulnerability and Willingness to Pay for Crash Protection." *Journal of Community Health* 3: 136–141, 1977.
(40) U.S. Department of Transportation. *The National Highway Safety Needs Report.* Washington, D.C., 1976.
(41) Foldvary, L. A. and J. C. Lane. "The Effectiveness of Compulsory Wearing of Seat-Belts in Casualty Reduction." *Accident Analysis and Prevention* 6: 59–81, 1974.
(42) Robertson, L. S. "Automobile Seat Belt Use in Selected Countries, States and Provinces With and Without Laws Requiring Belt Use." *Accident Analysis and Prevention* 10: 5–10, 1978.
(43) Williams, A. F. and J. K. Wells. "The Tennessee Child Restraint Law in its Third Year." *American Journal of Public Health*, in press.
(44) Lane, R. *The Regulation of Businessmen.* New Haven: Yale University Press, 1954.
(45) U.S. Department of Transportation. *The Secretary's Decision Concerning Motor Vehicle Occupant Protection.* Washington, D.C., December 6, 1976.
(46) Mills, E. S. *The Economics of Environmental Quality.* New York: W. W. Norton and Company, 1978.
(47) Zeckhauser, R. "Procedures for Valuing Lives." *Public Policy* 23: 419–464, 1975.
(48) Perlman, J. "Pinto Trial: Complex Plan Spelled Success." *Los Angeles Times*, Section X, p. 1, September 17, 1978.
(49) Wright, P. H. and L. S. Robertson. "Priorities for Roadside Hazard Modification: A Study of 300 Fatal Roadside Object Crashes." *Traffic Engineering* 46: 24–30, 1976.

(50) Baker, S. P. "Who Bought the Cars in Which People Are Injured? An Exploratory Study." *American Journal of Public Health* 69: 76–78, 1979.
(51) Karr, A. R. "Saga of the Air Bag, or the Slow Deflation of a Car-Safety Idea." *Wall Street Journal*, November 11, 1976.
(52) General Motors Corporation, Advertising and Merchandising Section. *Consumer Opinions Relative to Automotive Restraint Systems.* Report #71–27P, 1971.
(53) Kneese, A. V. and C. L. Schultze. *Pollution, Prices, and Public Policy.* Washington, D.C.: The Brookings Institution, 1975.
(54) Ackerman, B., S. R. Ackerman, J. W. Sawyer, and D. W. Henderson. *The Uncertain Search for Environmental Quality.* New York: The Free Press, 1974.
(55) Howes, D. R. *An Evaluation of the Effectiveness of Child-Resistant Packaging.* Consumer Product Safety Commission, Office of Strategic Planning, April 1978.
(56) Office of Strategic Planning. *Impact of Crib Safety Activities on Injuries and Deaths Associated with Cribs.* Washington, D.C.: Consumer Product Safety Commission, February 1979.
(57) Spiegel, C. N. and F. C. Lindaman. "Children Can't Fly: A Program to Prevent Childhood Morbidity and Mortality From Window Falls." *American Journal of Public Health* 67: 1143–1147, 1977.
(58) Robertson, L. S. "State and Federal New-Car Safety Regulation: Effects on Fatality Rates," *Accident Analysis and Prevention* 9: 151–156, 1977.
(59) Comptroller General. *Effects, Benefits and Costs of Federal Safety Standards for Protection of Passenger Car Occupants.* Report to the Committee on Commerce, United States Senate, Washington, D.C., 1976.
(60) Davies, J. C., III and B. S. Davies. *The Politics of Pollution*, 2nd ed. Indianapolis: Pegasus, 1975.
(61) Noble, H. B. "The Air: Unsafe at Any Site." *New York Times Magazine*, November 4, 1979, pp. 122ff.
(62) Regulatory Council. "Statement on Regulation of Chemical Carcinogens." *Federal Register* 44: 60038–60049, 1979, and Appendix B, *Federal Register* 44: 39858ff, 1979.
(63) Kane, D. N. "The Air Children Breath." *The Nation*, August 28, 1976.
(64) Kane, D. N. "Bad Air for Children." *Environment* 18: 26–34, November 1976.
(65) Corbett, T. H. *Cancer and Chemicals.* Chicago: Nelson-Hall Co., 1977.
(66) Office of Technology Assessment. *Environmental Contaminants in Foods.* Washington, D.C.: U.S. Congress, 1979.
(67) Kneese, A. V., R. U. Ayres, and R. C. D'Arge. *Economics and the Environment: A Materials Balance Approach.* Baltimore: The Johns Hopkins Press for Resources for the Future, Inc., 1970.
(68) Freeman, A. M., III, R. H. Haveman, and A. V. Kneese. *The Economics of Environmental Policy.* New York: John Wiley and Sons, Inc., 1973.
(69) Lowenbach and Schlesinger Associates, Inc. *Arsenic: A Preliminary Materials Balance.* Washington, D.C.: Environmental Protection Agency, Office of Toxic Substances, 1979.
(70) Fraumeni, J. F., ed. *Persons at High Risk of Cancer: An Approach to Cancer Etiology and Control.* New York: Academic Press, 1975.
(71) Lewis, R. J., Sr. and R. L. Tatken, eds. *Registry of Toxic Effects of Chemical Substances.* Cincinnati, Ohio: National Institute for Occupational Safety and Health, 1979.
(72) U.S. Census Bureau. *City–County Data Book.* Washington, D.C.: U.S. Department of Commerce, 1977.
(73) Consumer Product Safety Commission. *1979 Annual Report, Part II, Appendix D.* Washington, D.C., 1979.
(74) Robertson, L. S. and P. L. Zador. "Driver Education and Fatal Crash Involvement of Teenaged Drivers." *American Journal of Public Health* 68: 959–965, 1978.
(75) Robertson, L. S. "Crash Involvement of Teenaged Drivers When Driver Education is Eliminated from High School." *American Journal of Public Health* 70: 599–603, 1980.
(76) National Highway Safety Traffic Administration. *55 MPH Fact Book.* Washington, D.C., 1978.
(77) Environmental Protection Agency. "National Ambient Air Quality Standard for Lead." *Federal Register* 43: 46246–46277, 1978.
(78) Wolfe, S. M. "Testimony in Hearings Before a Subcommittee of the Committee on Government Operations." U.S. House of Representatives, *The National Cancer Program*, pp. 66ff, 1977.
(79) U.S. Environmental Protection Agency. *EPA Enforcement: A Progress Report.* Washington, D.C., 1976.
(80) Gordon, J. G. *Assessment of the Impact of Resource Recovery on the Environment.* Cincinnati, Ohio: Environmental Protection Agency, Municipal Environmental Research Laboratory, 1979.

NUTRITION EDUCATION AND INFORMATION

by
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THE NEED FOR NUTRITION EDUCATION

New Faces of Malnutrition in American Children Today[2]

New types of malnutrition are evident in American children today. Inadequate diet is less of a problem than it used to be, while inappropriate diet and malnutrition secondary to disease continue to be troublesome (*1, 2*).

Starvation, undernutrition, and most of the classical vitamin and mineral deficiencies (with the exception of iron deficiency anemia and insufficient intake of fluoride) are less common among children today than they were in the past. When they do occur, they appear in milder forms than previously. They are most common among children from low-income minority groups (*3*), among other families (especially if poverty is coupled with low social or educational status that further predisposes them to dietary inadequacy), and among children who suffer from diseases that have secondary effects on nutritional status (especially when these diseases have not been diagnosed or adequately treated). In general, infants, very young preschool children, and adolescents during the growth spurt are at greater risk than other children (*4–6*).

In contrast the prevalence of nutritional problems related to overnutrition, imbalances, and excesses of food intake appears to be on the upswing (*7, 8*). Dietary imbalances with respect to total fat, saturated fat, cholesterol, sodium, and energy are widespread in most income and ethnic groups in mid- and later childhood and adolescence, and sometimes even in the preschool years. Excessive energy intakes coupled with low-energy outputs frequently result in obesity. Also, adequate or even excessive energy intakes are frequently combined with inadequate intakes of protective nutrients, such as iron and vitamins A and C, among some

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[2]For a more detailed discussion of maternal and child nutrition status in the United States, see Barry M. Popkin in this volume.

children. Less frequently, toxicities occur as a result of excessive doses of vitamin or mineral supplements given to young infants or taken by adolescents.

Other dietary problems are now recognized to exist in addition to those related to inadequate, imbalanced, or excessive intakes, and these problems increase risks of certain diseases or conditions (*9*). Such phenomena include allergies, intolerances and hypersensitivities, food intoxication, feeding problems, emotional and behavioral problems related to food and eating, and (among adolescents) alcohol abuse. Furthermore, dietary insufficiency, imbalance, and excess along with other hereditary and environmental factors are associated with such conditions as certain types of poor mental development, obesity, dental caries, and some of the chronic degenerative diseases such as atherosclerosis and hypertension. These various risk factors are active even in childhood in influencing the likelihood of developing disease. Parents may not know or may fail to follow health promotion and disease prevention strategies that involve diet or other measures (*8*).

Our success in keeping some children alive who formerly died of prematurity, severe malformations of the gastrointestinal tract, diabetes, cystic fibrosis of the pancreas, and the like has also changed current patterns of malnutrition. It has increased the danger of malnutrition secondary to disease unless such children receive the special nutritional support or therapy they need. Often children afflicted with diseases such as some forms of cancer can now be prevented from developing additional complications due to malnutrition by appropriate nutritional measures. Yet failures to identify or meet some children's needs for special diets, foods, and health assistance are still quite common.

Finally, alterations in the social environments in which children live have also given rise to changes in malnutrition (*10, 11*). Some of these problems are caused by children themselves selecting inappropriate food. Others are due to lack of time for parents or pressures on parents, such as those that occur in many single-parent families or in families in which both parents work. Lack of supervision of children's diets may increase the risk of some forms of malnutrition.

These various problems are summarized in table 1.

Types of Children and Their Needs: Socioeconomic and Medical Classifications of Those With Special Problems

Even within a specific age group, diet- and nutrition-related needs are far from homogeneous. Further categorization by social and medical characteristics allows for greater specificity with respect to the need for nutrition education (see table 1).

The first group comprises normal, healthy children whose parents require only routine dietary advice and anticipatory guidance on the specific needs of the child according to his age and developmental stage.

The second comprises those with special needs that arise from socioeconomic and geographical causes. Income, ethnicity, and other factors such as special dietary practices that diverge from sociocultural

TABLE 1. Likely Nutrition-Related Problems of Children With Different Characteristics From the Medical and Socioeconomic Standpoint

Problem Classified According to Medical, Educational, and Social Factors	Children Who Are Normal and Healthy	Special Characteristics of Children Most at Risk		
		Socioeconomic Disadvantage[1]	Special Needs Due to Rapid Growth or Recovery[2]	Special Needs Due to Disease, Handicaps, or Family Pathology[3]
Inadequate diet				
Starvation	Rare	Rare	Rare	Rare
Undernutrition	Rare	Common	Rare	Rare
Micronutrient deficiencies	Rare	Uncommon	Uncommon	Common
Inappropriate diet				
Imbalances		Common	Common	Common
Overnutrition		Common	Uncommon	Uncommon
Toxicities	Uncommon	Rare	Uncommon	Uncommon
Other[4]	Uncommon	Common	Uncommon	Uncommon
Ignorance of or failure to follow health promotion–disease prevention guides that affect nutrition status	Uncommon	Common	Common	Common
Failure to identify or meet special needs (diets, foods, and health assistance)	Uncommon	Common	Common	Common

[1]Low-income family, ethnicity, and divergent family food habits.
[2]Prematures, small for dates, other rapidly growing infants, those recovering from illness, and juvenile pregnancy.
[3]Hereditary or acquired chronic disease.
[4]Poor hygiene or feeding techniques, poor timing of meals, pica, use of foods causing allergies or intolerances, lack of supervision, excessive use of food for emotional purposes.

norms, geographical isolation, or migratory patterns require special attention, for the children of such families are at greater risk of malnutrition than others. These include the children of migrants, non-English-speaking parents, Southeast Asian refugees, native Americans, and residents of American possessions and trust territories. Also deserving mention are children whose families have unusual eating habits and those from families who live on limited resources in unfamiliar environments such as the children of some American military service personnel stationed around the world. All children in these groups are likely to have special needs for dietary counseling and education.

A third group of infants and children comprises those who have special dietary needs due to specific physiological events or problems. This group includes premature or "small-for-dates" infants, pregnant adolescents, adolescents during the growth spurt, and children and youths of all ages who are obese as well as those who are undergoing catchup growth during recovery from severe disease, injury, or malnutrition. (These latter may also have other problems that fall into the following category.)

A fourth group of children with special needs comprises those who are at risk of malnutrition secondary to disease. They may need therapeutic diets or very detailed and specific nutritional counseling and support because of disease, handicaps, or other conditions including parental inadequacy, alcoholism, and neglect. Diseases requiring special diets and counseling include some forms of cancer, heart disease, diabetes mellitus, juvenile hypertension, renal disease, malabsorption, mental retardation, obesity, and iron deficiency anemia. Pregnant adolescent girls and others who have become dependent upon drugs or alcohol also require special dietary advice. Adolescents who have children often need advice for themselves as well as their offspring.

Children from affluent, highly educated, and stable families, particularly if they live in areas where access to health services is good, are more likely to receive care than are those whose families are poorer, less well educated, less stable, and of minority ethnic groups especially if they live in areas where health services are poorly developed. Although the severe and acute problems the children from affluent families suffer from are usually diagnosed and treated, more subtle problems often fail to be recognized. In general, these diet-related health problems presently are not dealt with as easily or as well as those difficulties arising from malnutrition among the poor.

Functional Classifications of Child Nutrition Needs

Common nutrition-related needs of children can also be classified functionally on the basis of the source of the child's difficulties or problems (*12, 13*). These are summarized as follows:

- Problems in the child's environment
- Child-rearing and home-management-related problems
- Behavioral-emotional-learning problems

- Problems associated with ignorance of general health information and education
- Problems due to lack of routine, diet-related counseling
- Problems related to temporary deviations from normal growth and development
- Problems related to stress and short-term transient conditions
- Nutrition management problems related to physical and mental handicaps or long-term illness
- Multiple problems that belong in one or more of the above categories

Examples of nutrition-related problems of children are given in the following list. These problems are classified according to the difficulties in functioning involved with the problem and are listed according to their increasing order of complexity and the increased clinical expertise that is usually required to deal with the problem. (That is, problems in the child's environment are relatively simple to deal with, but multiple problems such as those experienced by a poor, out-of-wedlock, pregnant, teenage girl with diabetes are very complex.)

(1) Environmental
- Physical problems of the home
- Cultural
- Community
  - —Lack of resources
  - —Use of resources

(2) Child rearing and home management
- Inadequate provision for child care
- Poor management of money, life, food, clothing, and household goods

(3) Behavioral-emotional-learning
- Behavioral and emotional problems with food intake and practices
- Alcohol, drug abuse
- Retarded learning affecting food intake or practices

(4) General health information or education lack
- No source of referral for health information
- No motivation for carrying out preventive or health promotion measures
- Lack of age-specific anticipatory guidance

(5) Disordered or inadequate growth and development due to lack of anticipatory guidance and supportive counseling appropriate for age
- Infants, 0–12 months
- Preschoolers, 1–5 years
- School-age children, 6–12 years
- Teenagers, 13–19 years
- Parents or responsible adults

(6) Temporary deviations in growth and development
- Inadequate or poor psychological development
- Inappropriate or inadequate food intake

(7) Short-term and transient illnesses or conditions
- Acute illness and surgery
- Adolescent pregnancy and lactation
- Disruption of home and food management

(8) Physical difficulties involving long-term illness
- Neurologic, neurosensory, muscular, orthopedic, or mental retardation
- Chronic difficulties of the gastrointestinal tract
- Chronic cardiovascular blood and renal disease
- Metabolic difficulties
- Dental caries
- Allergies
- Obesity
- Anemia

(9) Multiple and involved problems, including one or more of items 1 through 8
- Juvenile pregnancy
- Prematurity
- Very low birth weight
- Small for dates
- Birth defects
- Inborn errors of metabolism
- Child abuse or neglect
- Alcohol or drug abuse

Nutrition Education Needs of Children and Their Parents

Parents today report that they have persistent problems with children's diets (*14, 15*). Although they wish to improve their own and their children's health through changes in diet and other health-related practices that are prevention oriented, barriers to their doing so include the high costs of health care, inflation, lack of trustworthy dietary information, competing concerns for resources, drains on resources by more pressing problems, denial of nutritional problems, and the stigma associated with such problems as obesity or misuse of alcohol (*15*). Nevertheless, American parents are interested and concerned about health, open to discussion with their children, worried about many dietary issues, and realize that some constitute health hazards. Therefore, they are likely to be receptive to improved nutrition education, counseling, and nutrition support services. In the following section, some of the nutrition-education-related issues are summarized for each group. Additional sources that explore the nutritional and health needs of various groups are available (*16–20*). Groups of children with special socioeconomic or medical characteristics or those who exhibit functional problems often require additional attention directed specifically at their special problems.

Nutrition Education Related to Infants and Their Mothers

To reduce the prevalence of adverse conditions such as diet-related causes of fetal malnutrition, low-birth-weight infants, and infants born

with birth defects, comprehensive health care for all pregnant women and those who are likely to become pregnant should include dietary advice.

The additional nutritional needs imposed by pregnancy and needed adjustments in quantities and quality of food are not necessarily obvious to pregnant women, and guidance in food selection is therefore warranted. Iron supplements of 30–60 mg per day are now routinely recommended, and certain women with special needs may also require supplementation with folic acid or other micronutrients in addition to dietary advice. As pregnancy progresses, frequent dietary advice is often necessary to avoid inadequate or excessive weight gains. Counseling on breast feeding is also best begun during the pregnancy.

Some pregnant women require additional nutrition-related interventions, including extensive nutrition counseling, provision of food assistance, or help with food and money management. Although the provision of adequate food, appropriate counseling, and education about diet can help to lessen the risks of adverse outcomes at birth, in most cases other obstetric and medical measures are necessary. Therefore, nutrition services are best provided in the context of a health services system.

One form of low birth weight or smallness for dates is associated, among other factors, with low weight of the mother before pregnancy and poor weight gain during pregnancy. Pregnant adolescents, low-income blacks, and some of the other minority groups are more likely to become pregnant while in poor health and poor nutritional condition and thus are in particular need of attention. Alcohol abuse is also associated with smallness for dates. Lack of health care and lack of dietary counseling for women who suffer from certain forms of diabetes, inborn errors of metabolism, hypertension, or kidney or heart disease are also associated with poor pregnancy outcomes, often including low birth weight. The hazards to fetal health imposed by these diseases can be lessened by health and nutritional guidance. Appropriate diet can also reduce the incidence of birth defects arising from fetal alcohol syndrome and certain inborn errors of metabolism, such as phenylketonuria and a rare type of congenital hypothyroidism arising from extreme maternal iodine deficiency. Appropriate infant feeding and diet after birth can prevent additional complications that arise in some infants who are born with special nutrition-related problems. Other preventable causes of low birth weight and smallness for dates are unrelated to nutrition but yield to obstetric and medical interventions. What is known now must be applied by all of these means to prevent poor outcomes, and more effective ways must be found to treat those with poor outcomes that cannot be prevented now.

Adequate diet for satisfactory growth and development is crucial during the first year after birth. Human milk is the ideal infant food, and unless there are special problems, breast feeding is recommended, with no other foods introduced until 4–6 months of age. Lactating women also need dietary advice to ensure that their diets are appropriate. If the infant is not breast fed, some type of heat-treated milk or commercially prepared formula and appropriate supplements constitute the infant's staple food until 4–6 months of age. Nutritional imbalances and excesses, and unhygienically prepared foods must be avoided in infant diets to promote health and prevent diet-related risks for disease. All women with newly

born infants need advice on breast- or bottle-feeding techniques, appropriate types and amounts of foods and supplements, and monitoring infant growth and weight gains.

Many complications can be prevented through case-finding of infants at high risk so that parents can be furnished with appropriate dietary guidance. For example, the most common allergy-causing food in infancy is milk provided in an inappropriate form. By avoiding whole or skim milk and other potentially allergenic foods until 6 months of age by breast feeding or using heat-treated milk or formulas, some potential cases of allergies due to the proteins in milk can be prevented. Lactose intolerances are most commonly due to prematurity, infectious disease or other gastrointestinal problems, and more rarely, hereditary deficiencies or intolerances affecting certain ethnic groups. Anticipatory guidance regarding the use of special foods low in lactose for infants who are suffering or recovering from gastrointestinal infections or afflicted with food allergies and special precautions to avoid high-lactose intake for infants of families with a history of lactose intolerance can prevent problems from arising. Similarly, breast milk or other low-fat foods can prevent problems of the fat intolerance commonly seen in premature and small-for-dates infants fed high-fat foods. The parents of high-risk infants need special help concerning nutrition regardless of their incomes. Those who are poor as well have a particular need for attention because of the other diet-related problems that often also beset them. However, affluent mothers of premature and small-for-dates infants may also require special counseling because of their infants' needs for special nutrition measures.

By 4–6 months of age the normal infant needs more iron in the diet, which is provided in fortified cereal, fortified formula, iron supplements, and other iron-rich foods such as pureed red meats introduced later in the first year of life. The infant also needs fluoride either from fluoridated water or from another source such as a fluoride supplement. However, fluoride intake must not be excessive. If supplements are used they must be adjusted for the age of the infant and the fluoride content of the water supply. Overfeeding or overeating on the part of the baby must also be prevented through counseling in food selection, monitoring weight gain, and adjusting food intakes to energy needs before excessive weight gain occurs.

The special needs of infants in low-income families or families with special social and cultural characteristics require dietary guidance tailored to the economic realities and food habits of the family. Failure to meet these needs because of a lack of advice or inappropriate advice results in health and nutritional problems, which may then require expensive interventions.

Infants may fail to thrive because of diseases that have not been diagnosed or because they are not properly cared for, are abused, or are simply not fed. Dietary treatment is necessary but is usually insufficient by itself to deal with such conditions or to prevent their recurrence. Families with such histories need medical help before their children develop problems.

Counseling is also required for the necessary gradual transition to the family diets during and after weaning the infant from the breast or bottle.

This begins at about 6 months of age by the gradual introduction of solids with appropriate texture, consistency, and nonallergenic characteristics. Those responsible for infant care need to be aware of the risk of dental caries if staple foods are high in fermentable carbohydrates. They should be advised to reduce the risks of dental caries from fermentable carbohydrates by keeping children from falling asleep with bottles still in their mouths and by a gradual weaning from the bottle, as well as avoiding the use of sugar in baby foods. In late infancy, infants should be encouraged to feed themselves. Parents should also be counseled regarding possible physiological anorexia in late infancy, which often occurs as growth and, hence, appetite declines. Poor appetites are also associated with teething and illness, and parents need guidance on appropriate steps to take to minimize risks to nutritional status from these causes.

Nutrition Education and Preschool Children

Ideally the preschool child's physical and social environment should support emotional, intellectual, and motor skill development. Parents must distinguish between expressions of real nutritional need and other needs that are sometimes expressed as nutritional needs. They often require advice on how to express their own feelings toward the child other than through the use of food alone.

Parents also need to understand that the normal preschooler's striving for greater independence often includes temporary refusals to eat, food jags, and dawdling. Healthy attitudes toward food can be fostered, and parents should not become unduly concerned about fluctuations in food intakes or use counterproductive measures such as forcing, coaxing, or nagging.

The preschool child's parents play a powerful role in ensuring that nutrition is an enhancing factor during the preschool period. There are a number of positive steps they can take to do this. First, they can ensure that levels of physical activity and rest in the child's daily life are sufficient to maintain a good appetite and normal growth. Second, the parents can provide nutritious food in the home and see to it that it is provided in other settings in which the child eats, such as preschool and nursery school. Third, they can teach the child to choose and eat nutritious food by emphasizing nutrition in meal and snack planning and by discussing it with the child. Fourth, they can begin to help the child to distinguish between reliable sources of guidance on food choice and strictly promotional messages. Fifth, they can foster appropriate eating behaviors by acting as role models and by providing suitable eating experiences. Sixth, parents can handle struggles over food in such a manner to avoid the development of feeding problems. Seventh, they can begin inculcating habits of eating in moderation and avoiding food waste and excess.

Several special problems that may arise in the diets of preschool children are common enough to deserve special mention. Particular emphasis in diet planning must be directed toward iron because it is low in the diets of many preschoolers. Whole milk and other iron-poor high-energy foods such as baked goods, candies, and soft drinks should be offered in moderation. Skim or 2 percent milk can be substituted for

whole milk, and foods rich in iron should be increased, such as red meats, poultry, and fortified, enriched, or whole grain cereal products. Fluoride is another common dietary deficiency among preschoolers. If they do not drink fluoridated water, fluoride drops or supplements are recommended. In addition to good oral hygiene and frequent visits to the dentists, caries prevention requires moderation in the consumption of sticky candies, confections, and other foods, especially between meals. Such foods contribute little nutritional value other than energy to the diet, and if they are given in excess for rewards or as signs of love, the child may equate sweetness with goodness; hardly sound nutrition education.

Excessive weight gain requires monitoring of growth status and modification of diet and exercise patterns. Experts do not agree on the routine alteration of diets of preschool children who exhibit predispositions for acquired hyperlipoproteinemias or high blood pressure unless other evidence of overt disease exists, although the possibility of harm from such dietary modifications appears to be slight if they are supervised by a physician and ongoing health care is provided simultaneously.

School-Age Children

Parents continue to play a pivotal role in the nutrition education of children in the school years. First, it is up to them to provide good examples and guidance that will instill positive attitudes about food and healthful eating habits. These include regular eating patterns and wise choices of foods for snacks, as well as providing meals that carry their fair share of nutrients, moderating the use of foods (especially sweets) for rewards, ensuring that conditions at home encourage the child to eat breakfast, and helping the child to become a sophisticated and responsible food consumer. Second, parents can enhance child nutrition by establishing consistent guidelines that are followed in managing the child's food intake. Guidelines include letting the child know what foods are considered desirable for him to eat at meals and snacks within the home and similar principles governing away-from-home eating. In coping with the child's food dislikes, a considerate but conservative attitude that stops short of the parent becoming a short-order cook is advisable. A fair, open-minded, and accommodating attitude toward the child's preferences for favorite foods in meal planning is helpful, but it must be tempered by judgment in acceding to the child's requests for foods that the parent does not want the child to have. Parents also need to lay down general guidelines to help the child develop necessary social skills connected with food and eating, such as the rudiments of adult table manners, entertaining guests, and assisting with food-related chores. A third major way in which parents can enhance child nutritional status is to promote eating and physical activity habits that foster normal body fitness within the entire family. Measures include furnishing role models of moderation in food intake, a physically active life, and maintenance of body weight at normal levels. Parents need to take steps to ensure that the child engages in vigorous daily physical activity on a year-round basis and to help the child practice non-food-oriented forms of emotional release. Food should be used primarily for relieving hunger rather than for emotional purposes,

such as rewards, punishment, pacification, or as the major means for expressing affection.

A fourth item on the parental nutrition education agenda is to ensure that children's diets are adequate and balanced. Although growth during childhood is slow and steady, nutritional needs are greater in proportion to body weight in childhood than in adulthood, and therefore dietary quality is important for children. In planning menus for furnishing a wholesome and nutritious diet to the school-age child, intakes of iron and vitamins A and C deserve attention. Food sources rich in these nutrients are few in number and are not usually preferred by most children, and therefore they tend to be the "problem" nutrients. Food guides are helpful here. They stress inclusion of good sources of iron such as red meat, poultry, and some fishes as well as iron-fortified, enriched, or whole-grain breads and cereals, the dark green, leafy and deep yellow vegetables, which are good sources of vitamin A, and citrus and other fruits and vegetables that are good sources of vitamin C. Most children receive a higher proportion of the protective nutrients from regular meals than from usual choices of snacks. Therefore, children who eat regular meals are more likely to have healthful diets than are those whose eating patterns are more sporadic. In addition, small children should not be subjected to long periods of time without food, and therefore skipping meals or substituting snacks for breakfast and lunch is not advisable. When excessive intakes of foods that are high in calories and low in protective nutrients (such as vitamins and minerals) are a problem, the solution is to restrict availability of these foods within the house and to teach children more appropriate choices. The wise choice of snacks from the standpoints of energy intakes, overall diet quality, and the prevention of dental caries should be stressed. It is also up to the parents to ensure that family diets provide moderate amounts of energy, total fat, saturated fat, sodium, and cholesterol so that excesses and imbalances of these food constituents do not occur. Imbalances of fat and sodium are present in many children's diets. Moderate downward modifications pose no known health risks and may be of positive health benefit.

Fifth, parents need to take steps if excessive fatness or obesity has become a problem for the child. Working with a physician, the parents should take measures to increase the child's physical activity while slightly damping energy intakes, which will permit the child to grow normally while losing fat. Childhood obesity is more likely to be due to low-energy outputs than high-energy intakes. Even in the school years, obesity has adverse effects upon child health and development. Therefore, even if it cannot be eliminated, efforts to reduce its severity are desirable. However, in children the goal is fat loss, not necessarily weight loss. This permits the child to "grow into his fatness" rather than stunting his growth by very restrictive dietary measures.

Childhood obesity can largely be avoided if parents and their children are assisted in developing food habits that balance food intake with energy output and therefore maintain normal body fatness. However, nutrition advice will be of little use unless food is available in moderation, the child leads a physically vigorous life, and food is not used excessively for emotional purposes. Low calories, nutritious items in place of higher

calorie items in the child's diet, and avoiding the excessive use of foods for emotional purposes are useful steps in this direction.

The special needs of certain groups of children as described previously among preschool children continue during the school years. Obesity is probably the most common problem. Poor growth due to diet or illness is also present in some groups, especially low-income minority group children. As the child grows older, he begins to eat more of his meals outside the home. Parental control over diet becomes more tenuous and thus the child must assume greater responsibility, especially if a therapeutic diet is indicated. For this reason, dietary counseling for the child who must adhere to a therapeutic regimen requires participation of the child and steps to help make the larger environment conducive to adherence rather than concentrating solely on the parents and the home.

It is also important to adjust Government-sponsored meal programs for children with special needs so that they are not exposed to discrimination or ridicule because their families' incomes or their own specific social or physiological characteristics differ from those of their peers.

Nutrition Education Needs of Adolescents

The pubertal growth spurt is a period of growth exceeded in intensity only by that of the fetus and the infant. Significant increases in almost every nutrient are needed for sustaining rapid growth rates and larger body size. For this reason alone specific information and dietary education are needed for adolescents during the period of their most rapid growth. Special attention also needs to be paid to intakes of iron, especially among adolescent girls. Moreover, it is important for adolescents to understand the growth process so that they will not become unduly alarmed by the pace, timing, and temporary deviations in size that occur as puberty begins. Ideal weight-for-height tables are of little help in judging whether the growth of individual adolescents during the year of maximum growth is appropriate because they represent averages based on age rather than on physiological maturity, and the timing of the pubertal growth spurt varies widely by chronological age. More specific guidance from a health professional is therefore needed so that appropriate growth is maintained. Undernutrition with respect to energy is rare in adolescence, while obesity is relatively common. If excessive weight gain occurs in the prepuberty period, obesity control measures should include moderate reductions in energy intakes and stepped up physical activity. Severe dietary restriction accompanied by weight loss is not advisable except in cases of morbid obesity, as it may restrict linear growth. Thus, a more conservative goal is to maintain or only slightly decrease weight while allowing growth in height and lean tissue to continue. A year or two after the pubertal growth spurt, those with excessive body weight may again need dietary counseling, and at this point weight loss can be encouraged without danger to growth or health.

Dietary imbalances are also relatively common among adolescents and are exacerbated in some cases by irregular food habits and an excessive intake of snacks and fast foods at the expense of regular meals. Teenagers

often eat large amounts of food between meals that has fewer protective nutrients and more sugar, starch, and energy than food at regular meals. These dietary habits, taken together, pose risks of dental caries and obesity as well as shortfalls in some of the protective nutrients. In addition, these habits tend to result in intakes high in total fat, saturated fat, cholesterol, and sodium. Moderation is important in the intake of food high in these constituents especially by those who are known to be at risk for obesity, hyperlipidemia, or high blood pressure. All teenagers can be helped to select snacks and foods away from home that meet their overall nutrient needs while avoiding excess.

As children begin adolescence, they are dependent upon their parents for their dietary needs. By the end of adolescence, they are largely independent. Parents have the difficult task of helping adolescents to assume greater responsibility for their own nutrition and health while ensuring that dietary essentials for growth are met. Several steps are helpful in achieving these goals. First, parents and teachers must provide adolescents with the assistance they need to understand their nutrient needs and how to meet them as their needs change with growth. Enormous increases in body composition and nutrient stores must be achieved during adolescence, and these must come from food. Nutrient needs vary during the period from 10 to 20 years, owing to the differing demands imposed by the various phases of growth. Increases in nutrient needs associated with growth are especially high during pubescence (the period up to the attainment of sexual maturity). During later adolescence, needs for nutrients stay high to maintain the new tissues and physiological functions resulting from growth. Adolescents of the same calendar age have very different nutrient needs because time of maturation varies both between males and females (males experiencing the growth spurt about 2 years later on the average than females) and between early and later maturers of the same sex.

Second, parents can help adolescents adopt and maintain healthy dietary habits. To do this, it is important to ensure that energy needs as well as intakes of protective nutrients are satisfactory. The "basic-four" food guide adopted for teenagers is helpful for this purpose, but special emphasis needs to be placed on food choices that are high in iron and calcium because teenagers' intakes are often low in these nutrients. Dietary advice should also include moderation in intakes of foods high in energy and low in protective nutrients.

Third, parents need to work with adolescents to find ways to eat that fulfill their own individual needs, philosophies, and wants without doing violence to their nutritional status. Adolescent preferences for frequent snacks and "mini" meals and the unconventional meals they sometimes eat are no cause for concern if these preferences are included in teenagers' daily nutrition plans.

Fourth, parents can help adolescents to identify and alter eating habits that are not conducive to good nutritional status. The problems that may be involved are several, including longstanding poor dietary intakes, irregular and unplanned food intakes, and excessive intakes of high-calorie, low-nutrient density foods. Intakes of total fat, saturated fat,

sugar, and cholesterol may also be excessive and should be lowered. Some adolescents have low intakes of dietary fiber, and increasing intakes can ensure laxation if constipation is a problem.

In summary, the Dietary Guidelines, which were recently released by the U.S. Department of Agriculture and the Department of Health and Human Services, furnish a good guide for achieving more appropriate dietary balance. Other points specific to the needs and wants of adolescents also need emphasis, however. Reliance on vitamin pills rather than foods to ensure nutritional adequacy needs to be deemphasized. Extreme versions of alternative lifestyle diets such as vegan-vegetarian diets, which provide little or no animal foods, especially when they are coupled with "health," "natural," and "organic" food diets, are to be avoided. A number of dietary treatments of unproved therapeutic utility for acne, hyperactivity, and depression are popular. The use of vitamin pills, mineral supplements, or special diets has not been demonstrated to be beneficial in alleviating these conditions, and they are better dealt with by other measures. Alcohol use is best avoided entirely, or at the least until late adolescence, and alcohol abuse should be avoided at all ages. Discussions with adolescents on the uses and abuses of alcohol are sometimes avoided by parents, seemingly out of fear that the very mention of alcohol will in itself lead to excessive consumption. Some teenagers develop drinking habits that predispose them to alcohol abuse simply out of ignorance, and therefore frank discussions are in order. Teenagers should be taught that they need not drink at all, but that if they do, they must drink sensibly, using alcohol in moderation along with food, drinking slowly to dilute the dose, avoiding solo drinking for emotional reasons, and eschewing any alcohol consumption when driving.

A fifth step parents can take to enhance nutritional status is to help teenagers to keep their weights at appropriate levels or to alter their weights if necessary to achieve better health status. The teenager may have unrealistic notions of body image and physique that need correction. Parents can also provide support and positive role models to encourage adolescents to take responsibility for maintaining healthful dietary habits and weight levels. The keys to obesity prevention include monitoring of fatness status, moderation in dietary habits, a physically active life, and provision of psychological support from parents and peers. If obesity is present, parents can help the adolescent determine if, when, and what action is called for.

Some adolescents need special dietary advice. Among them are the obese (particularly females in low-income groups), the very lean, those who diet excessively, the very poor, those who are living independently, those who are known to have deficiency diseases or to already exhibit diet-related risk factors for chronic degenerative diseases, pregnant girls, those on alternative diets (e.g., vegan, vegetarian, health, natural, and organic food diets), and adolescent parents, especially if they are poor or members of minority, ethnic, or social groups. Adolescents who suffer from diseases or conditions that require therapeutic diets or who are on self-determined diets for treatment of acne or other conditions are also especially in need

of help. Finally, pregnant teenagers need nutritional assistance. Their energy needs are elevated, as are their other nutrient needs.

NUTRITION EDUCATION PROGRAMS

Remarkable progress has been made over the past decade in alleviating poverty-related malnutrition in children. Only a decade ago, in a time of relative affluence and low food prices, these forms of child malnutrition were far more common among children from low-income families than they are today (*21–28*). The exuberant proliferation of categorical programs instituted by the social legislation of the 1960's and early 1970's provided food and health services and did a great deal to ensure that all children received enough to eat. However, these programs have not dealt as effectively with problems associated with nutrition education, excessive food intake, or fostering healthful food habits when sufficient food is available. Coordination among programs has also been poor. Their failings in these latter areas need to be corrected, but these shortcomings do not justify the elimination of food and health programs. It is naive to assume that freestanding nutrition education programs will be the remedy. Categorical food programs and nutrition education programs are not substitutes for each other, because they deal with a different set of nutrition-related problems. The adverse effects of even small shifts in the availability of food and health services on child health even in the face of nutrition education has been well demonstrated (*25, 26*). Therefore a more sensible alternative is to strengthen nutrition education components of these programs.

The Role of Nutrition Education and Information

Much faulty nutrition and resulting ill health are due to inadequate knowledge, attitudes, or practices regarding nutrition rather than to the unavailability of necessary foods or inherent medical problems. For these problems, nutrition education is useful, but usually it must be coupled with efforts to modify the social, economic, food, and health-related aspects of the environment. When there is a shortage of food or illness is present, the need for nutrition education is even more pronounced. When specific food, health, education, and welfare programs for children exist, nutrition education components within them are needed to supplement and enhance their effectiveness. Nutrition education contributes to the efficient and effective delivery of other social services as well and stimulates individuals to act so that such services can have maximum effects. When general welfare services are minimal, nutrition education and information services are even more important, because without them even a child's basic needs for food to maintain good health may be misunderstood or given low priority by uninformed parents or care providers. However, nutrition education is best thought of as a supple-

ment to, rather than a substitute for, other food, health, education, and welfare programs.

Purposes of Nutrition Education for Children

To inform means to provide information without attempting to change attitudes and practices. To educate means to inform and also change attitudes and practices. Although controversy exists over whether the appropriate goal of Government-sponsored programs of this nature for adults should be to inform or to educate, there is more consensus that nutrition education is appropriate for children, especially if the formal education system or health-related systems are involved in its delivery.

Variations in Nutrition Education Programs

Programs in nutrition education and related areas vary in a number of ways. First, the type of child who is covered varies. Some programs are open to all children of a specific age. Others are restricted to specific groups, such as children from low-income families or those with other physical or social characteristics that put them at special nutritional risk. Additional criteria for eligibility also exist for some programs. Other programs aim not at reaching the child directly but at training professionals, paraprofessionals, or others such as parents who in turn indirectly influence the child.

Second, the programs differ on the site in which the child is reached. These include the home, day care center, school, a health care setting, other locations outside the home, or a child care institution.

Third, the programs can be classified by their predominant purpose. Such a classification includes programs devoted solely to nutrition education, those in which nutrition education is a component or supportive service in a larger program, the production of publications or mass media efforts, those devoted to the training of persons who will in turn provide nutrition services to children, nutrition education, research programs, and nutrition advertising or labeling projects.

Fourth, programs differ in their major emphases, themes, or topics. In one recent study (*29*) emphases among programs varied from considerations of diet and health and basic nutrition through a large variety of food-related topics including food storage, safety, preparation, and handling. In another study, themes among programs were found to vary from an emphasis on general nutrition or diets to deficiencies and diseases to primary emphasis on health services.[3] Unfortunately, a common classification scheme was not used by the different investigators in any of the major surveys that have been done, and therefore, information on program content is still fragmentary (*29, 30*).[3] The basic problem is that

[3]Personal communication (anonymous source), U.S. Department of Health, Education, and Welfare.

various Federal agencies define nutrition differently. Therefore, without additional descriptive information, it is very difficult to determine what is meant by the term "nutrition education" as it is used in any given context.

Federal Nutrition Education and Related Programs

In the past 5 years, several useful reviews of the Federal nutrition education programs have been published.

In 1977 the Library of Congress identified 30 programs providing nutrition education in 11 agencies within the Department of Agriculture (USDA), Department of Health and Human Services (DHHS), and the Federal Trade Commission (FTC) (*30*). At least 22 of them included children in their criteria for eligibility (*30*). Activities both within and between agencies were found to be without formal coordination and duplications existed. Congressional oversight was dispersed among 19 Congressional committees. The 30 programs themselves were found to operate under no unified Federal policy and to lack clear, concise goals. Problems of the distribution of materials and information were common, and no evaluation of the actual impact of the nutrition education had been carried out.

In 1978 the Library of Congress updated the 1977 report on Federal nutrition education programs (*31*). At least three new programs serving children were identified, bringing the total to 25. Federal expenditures in these programs had also increased by 50 percent largely because of the inclusion of the USDA's new program in Nutrition Education and Training (NET) and additional funds for education and training in the Special Supplemental Food Program for Women, Infants, and Children (WIC). Both of the major departments (USDA and DHHS) appeared to be giving increased attention to nutrition education. The USDA had placed greater emphasis on developing mass media techniques, improving the design and content of publication, and coordinating activities through a human nutrition policy committee. Within DHHS, the Office of Health Information and Health Promotion had the responsibility, although in general, DHHS efforts did not appear to be as intense or directed as those of USDA.

In early 1979, DHHS's Nutrition Education Subcommittee undertook a more detailed survey of all nutrition education and information activities within that department. A total of 43 nutrition programs were identified (see footnote 3). The large number of programs should not necessarily be taken as a sign of growth as different definitions and ways of counting activities were employed. For example, a broad definition of program was used; activities that were not identified as line items in the budget were included. Budgetary breakouts were not presented in the preliminary report. Also, the subcommittee's definition of nutrition education was different from that used in the other studies cited (*30, 31*) (see footnote 3) in that direct delivery of services (such as the nutrition counseling of patients) was included and some programs were identified for separate discussion that had been grouped together in the other studies.

Nutrition Education and the President's Reorganization Project's Food and Nutrition Task Force Study

According to the findings of the President's Reorganization Project's Food and Nutrition Task Force study (*32*) published in 1978, approximately $118 million in Federal funds were directly attributable to nutrition education (table 2). Approximately 20 programs or program components, employing 60 people, were identified, most of them in the USDA. The major programs were the Expanded Food and Nutrition Education Program (EFNEP) of the Science and Education Administration, the Food and Nutrition Extension Program of the same agency, the NET program of the Food and Nutrition Service, and the WIC program, also operated by the Food and Nutrition Service. Together these four programs accounted for 84 percent of the Federal funds devoted to nutrition education, and all USDA programs accounted for 89 percent of

TABLE 2. Nutrition Education Expenditures Identified by the Food and Nutrition Task Force, President's Reorganization Project, 1978

Major Agencies Involved and FY 1978 Resources	$ (Million)
Agriculture	
Science and Education Administration	
Expanded Food and Nutrition Education Program (EFNEP), Extension	50.6
Food and Nutrition Education Program, Extension	10.0
Human Nutrition Center	1.2
Cooperative Research	1.7
Food and Nutrition Service	
Special Supplemental Food Program (WIC)	12.9
School Nutrition Education and Training	26.2
School Nutrition Education and Training Surveys	0.7
Cash Grants for Nutrition Education	1.0
Food and Nutrition Information Center	0.3
Health, Education, and Welfare	
Office of Education	
Title IV, Elementary and Secondary Education	1.7
Health Services Administration	
Bureau of Community Health Service	5.0
Indian Health Service	1.5
Public Health Service	
National Institutes of Health	
Heart, Lung, and Blood	4.0
National Cancer Institute	0.06
National Institute of Arthritis, Metabolism, and Digestive Diseases	0.07
National Institute of Dental Research	0.10
National Institute of Child Health and Development	0.50
Center for Disease Control	
Bureau of Health Education	0.50
Administration on Aging	
Nutrition Program for the Elderly	*
Administration on Children, Youth, and Families	
Head Start	*

KEY: * = information unavailable.

the total nutrition education budget. The remaining 11 percent of Federal dollars were in DHHS-funded programs.

This analysis has several flaws, stemming in part from different accounting practices in the various Federal agencies. Most USDA programs have more specific mandates, and nutrition education is either a specific budgeted item or otherwise relatively easy to account for in breaking out costs. In contrast, most DHHS programs include nutrition education or nutrition counseling services as an optional component depending upon recipient needs for health services or education. An accounting of programs' costs becomes extraordinarily difficult under such circumstances. Even programs such as Head Start, with relatively well-developed and mandatory nutrition education components, were omitted from this analysis because of the difficulties in separating out specific costs for nutrition education purposes in multiservice programs. For these reasons the nutrition education cost components of DHHS programs were probably underestimated.

The 1978 General Accounting Office Report on Nutrition Information and Education: Major Problems Discovered

In 1978 the Comptroller General of the United States issued a report criticizing nutrition information and education efforts at the Federal level (*29*). The highlights of that report are summarized in the following section.

Publications

The General Accounting Office (GAO) report included an inventory of published nutrition education material according to agency (*29*). The Office of Education did not appear to have produced any such materials. In that report, programs were not classified by specific themes or target groups, but rather all materials from the agency or administrative unit were classed together. Because program-by-program information is not available, the following steps are necessary before a more complete review will be possible:

(1) A complete list is needed of all materials produced at the Federal level or by federally funded programs at the State or regional level. Efforts should focus on obtaining information on all programs.
(2) A standard classification system must be developed that includes all of the terms used in both the GAO study and the DHHS study.
(3) Primary target audiences must be determined for each type of material for each program.
(4) The materials should be classified according to items 2 and 3.

Lack of Defined Areas of Responsibility

Agencies in each of the major departments still appear to lack defined areas of responsibility, and certain subject areas are being addressed simultaneously by several agencies or programs. Some of the duplication

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is understandable since the target audiences vary. However, some of the duplication appears to be due to failure of programs to use nutrition materials from other agencies or departments. In the past year, both the Department of Agriculture and the Department of Health and Human Services have begun inventories of the materials they have available. This should simplify consumer and professional access to specific types of information.

Predominance of Printed Materials

Printed materials predominate over films, television, radio public service announcements, or other mass-media-oriented efforts without any assurance that printed materials are the most effective method of information dissemination. Indeed, for child audiences there is reason to suspect that they are not.

Lack of Formal Evaluation

Few materials in either department are formally evaluated, and most agencies have little knowledge of the effectiveness of their nutrition information activities in terms of audiences reached, message retention, or changes in eating habits. Several of the more recent programs (including Food for Thought sponsored by FDA and the National Institutes of Health) as well as a few of the older programs (most notably NET and the diabetes education activities of the Center for Disease Control) are now routinely including evaluations in their nutrition education activities, although much remains to be done in this regard.

Little Dissemination

The GAO's 1978 report found that very few of the nutrition education publications were widely disseminated to the public. Both departments have attempted to "spruce up" their publications for the lay public since that time. For example, USDA recently produced a new guide to food selection that was published in an attractive format for high school students (*33*). It is also launching a pilot study that will involve the use of the mass media with messages directed toward children. Similarly, the Department of Health and Human Services has let contracts for the development of more appealing materials and is currently developing programs for educational television, which will include an emphasis upon nutrition.

Overall Effort Weak

The GAO report found that Federal Government efforts to inform the American people about nutrition had generally been insufficient. A particular weakness was the paucity of food choice information on types and amounts of fat, carbohydrate, and protein or amounts of alcohol, salt, and cholesterol. Only a few programs have begun to address these issues, although numerous surveys indicate that consumer questions are common.

Federal Nutrition Education Programs in 1980

Nutrition education appears to accomplish its objectives best when it is provided in combination with other goods and services, such as food, health care, or more general education, and reinforcements are provided simultaneously. Therefore, not only specific nutrition education programs should be studied, but related activities that might provide such reinforcements must also be investigated. The recent inventory of Federal food, nutrition, and agriculture programs compiled by the General Accounting Office after being especially commissioned by Congress was the primary source of data (*34*) for our study of child-related nutrition education and information programs, which is described in greater detail in the following sections. By using the computerized data base provided by GAO, it was possible to search all relevant entries and to ascertain nutrition education program activity; 37 programs were identified (table 3).

Budgets

Many programs do not report nutrition-education-related components separately; therefore the level of funding of nutrition education is extremely difficult to determine. Table 4 reports our findings. With the exceptions of the food and nutrition extension programs and the NET program, expenditures for nutrition education are included in larger programs with other primary missions. The expenditures for nutrition education are possibly substantial in these other large, multipurpose programs, but breakouts of costs for nutrition education are the most elusive and difficult to make. In these same programs the service provider or researcher has the greatest latitude on whether to include the component or not. Unfortunately, there is no guarantee that it is included even if it is sorely needed.

The budget estimates highlight the need for better reporting systems on expenditures devoted to nutrition information and education, especially when they are part of larger service or research programs. These observations are particularly relevant to programs in DHHS and in the new Department of Education.

Eligible Children

Of the 37 programs reported in the General Accounting Office inventory, 15 of the nutrition-related programs serve the general child population, 13 serve low-income children, and 9 serve children with special medical or social characteristics, such as mentally or physically handicapped children, migrants, American Indians, or ill children.

Program Purposes

In general, all children are eligible for educational activities that may include some nutrition education (depending on the State, school system, and teacher). With the exception of USDA's NET program and DHHS's Head Start, the educational programs that exist are largely focused on the older child.

TABLE 3. Nutrition Education and Related Programs for Children

Children Eligible To Receive Program Care	Setting of Program Care					
	Home	Day Care	School	Health Setting	Other Setting Outside Home	Institution
All children in setting						
(1) School Breakfast[1]			X			
(2) Educational Television Programing	X					
(3) Children's Advertising	X					
(4) Child Care Food Program[2]		X				
(5) Nutrition Education and Training		X	X			
(6) Consumer and Homemaking Education			X			
(7) Health Education			X			
(8) Food Safety: Nutrition	X		X		X	
(9) Increasing Use of Fishery Resources			X			
(10) School Lunch Program[1]			X			
(11) Special Milk Program[1]			X		X	
(12) Vocational Education Basic Grants			X			
(13) Food and Nutrition Extension Program					X	
(14) Product Safety Advertising for Alcohol	X				X	
(15) 4H: Youth[2]					X	
Low-income children						
(16) Food Stamps	X					
(17) WIC—Special Supplemental Food Program for Women, Infants, and Children	X			X		
(18) Food Donation Program[3]	X				X	X
(19) Expanded Food and Nutrition Education Program						
Adult program	X					
Child program					X	
(20) Community Supplemental Food Program	X					
(21) Head Start–Nutrition[3]		X				
(22) Follow through			X			
(23) Concentration Grants Title I ESEA			X			

TABLE 3. Nutrition Education and Related Programs for Children (Cont.)

Children Eligible To Receive Program Care	Setting of Program Care					
	Home	Day Care	School	Health Setting	Other Setting Outside Home	Institution
(24) Grants for Disadvantaged Children			X			
(25) Early Periodic Screening Diagnosis, and Treatment–Medicaid				X		
(26) Summer Food Service for Children[3]					X	
(27) Youth Services: Runaway Youth[3]						X
(28) Community Food and Nutrition					X	
Children with special medical or social characteristics						
(29) Feeding program in Indian residential and day schools			X			
(30) Programs for handicapped children			X			
(31) Programs for migratory children			X			
(32) Indian Health Service						
(33) Health Management Development Program				X		
(34) Maternal and Child Health–Crippled Children's Services						X
(35) Programs for neglected and delinquent children						X
(36) Migrant and Seasonal Farmworkers–Employment and Training				X		
(37) NIH programs in biomedical and behavior research and training				X	X	

[1]Low-income children are given preference in these programs.
[2]Both low-income children and those with special medical and social characteristics are given preference in these programs.
[3]Children with special medical or social needs are eligible for these programs.

TABLE 4. Education Estimated Budgets of Child Nutrition and Related Programs by Major Purpose of Effort

Major Purpose of Programs	1980 Budget (Federal Only) Millions, Rounded
Nutrition education	20
Nutrition information education included as a component of larger program in:	
Education	[1]136
Consumer information	[1]13
Feeding	10411
Health services	[2]22
Welfare	—
Publications or mass media	1
Training of professionals or related occupations	[3]3
Research	[1, 3]140
Advertising or labeling	[3]<1

[1]No specific breakouts for nutrition component of program available for several programs in this group.
[2]No figures available for EPSDT or referrals of Supplementary Security Income recipients for Vocational Rehabilitation and Child Health Service.
[3]These estimates are discussed elsewhere in this report and are subject to considerable error.

All children are also eligible for school meal programs. These are provided free or at a reduced price, depending on family income, to children in schools or other educational settings from primary school through high school.

In addition, poor children are eligible for other educational programs with nutrition education components that start earlier in life, as well as for a variety of food programs and health services with an optional nutrition counseling component. However, aside from the USDA's EFNEP extension program, children are reached outside rather than inside their homes.

Children with special social or physical characteristics are eligible to receive special educational and health services geared to their needs. These programs sometimes include nutrition and are usually provided through health services or in special schools. The providers of these services also receive continuing education and training in several of the service programs.

The programs for all children emphasize consumer information, general or basic food and nutrition and food selection, and the buying, preparation, and handling of food. Programs for low-income families include consumer information on Federal programs in some cases, but the major emphasis is upon general or basic food and nutrition and food selection. Within a health services framework, the provision of food and

nutrition counseling and education relating to diets, especially therapeutic diets, also are common. Programs for children with other special needs are focused most heavily on nutrition counseling within a health services context. Several programs have multiple emphases, although often there is no logical link between components. For example, the School Lunch Program does not include information on basic food and nutrition or food choices unless the school elects to include this component.

Linkages

Although the GAO inventory requested that related programs be identified, in no case did any of the program descriptions actually list any related activities. This indicates either that the enabling legislation is vague in specifying desirable connections between programs or that those who compiled the descriptions did not regard their programs as closely associated with any other activities. Personal interviews with program staff indicated that, in fact, a number of linkages sometimes existed at the Federal, State, and local levels and that, in general, program staff believed that these were desirable and helpful to the children and families who received services. Examples in which linkages were helpful include the Head Start–Child Care Food Program links, and the various Indian Health Service programs that enjoy close ties with several of the USDA food programs, the Extension Service, and other Public Health Service programs. Also, the NET program in USDA has helped in some cases to tie school food service programs more closely to the formal classroom curriculum, and the community food and nutrition programs have increased participation in other federally funded efforts, such as food stamps and child nutrition programs. Other examples of positive cooperation could be cited as well.

Interviews with program staff also revealed that the present Federal bureaucratic structure did not always actively foster the development of linkages between programs. In the past few years the topic of nutrition has become highly politicized within the Federal Government, and interdepartmental rivalry has been marked (*35, 36*). As a result, interdepartmental cooperation may have been hindered. Federal officials at the program level expressed concern that regularly scheduled interdepartmental meetings of middle-management level civil servants no longer took place. Until 1974 an interagency committee on nutrition education met on a regular basis and helped to foster linkages and cooperation at the Federal program level. Although the committee did not have policymaking authority, it did help agency representatives to see the Government's efforts in a wider perspective that led to some cooperation and coordination at the program level. Now interdepartmental meetings are usually at the policy level and those closest to the programs are not always included. Much remains to be done if interagency contact at both the policy and program levels are to be facilitated in the future. Within the past year a number of signs of cooperation have emerged. For example, a recent publication (*37*) describes a variety of Federal programs in many agencies that may be helpful in providing nutrition information and services to participants in many programs. The USDA and DHHS jointly

issued a publication on Dietary Guidelines for Americans. Nutrition monitoring and surveillance are being better integrated into programs within departments. Both USDA and DHHS have sponsored human nutrition research conferences (*38, 39*) and DHHS funded a national nutrition education conference with the cosponsorship of USDA, FTC, the Executive Office of the President, and the Society for Nutrition Education (*40*). All of these activities included representatives of all relevant Federal departments. Also, recent efforts on the part of both departments in other program areas indicate that lately more attention has been paid to coordination (*41, 42*). A number of problems remain (*43–45*) that must be solved before interdepartmental cooperation can be improved, but these efforts represent a first step toward achieving better linkages between nutrition-related programs in the future.

Problems

Seven organizational problems inhibit nutrition education efforts at the Federal level.

(1) *There are no formal mechanisms for achieving a working consensus on nutritional guidelines for the public.* This problem has two aspects. One has to do with message content and the other with organization.

The basic messages in nutrition education must be practical and stated in ordinary language. In the past, Government-sponsored nutrition education efforts centered around food choice guides such as the basic four foods, which provide only for sufficient intakes of protective nutrients. Agreement was widespread within the scientific community that such guides were appropriate. The message of "eat a variety of foods from each of the four major food groups" was not controversial and met little opposition from the private or voluntary sectors. However, in the last few years, new developments have called into question the utility of such guides as the sole or major message for consumers. First, as knowledge of nutrient needs has grown and recommendations for specific nutrients have changed, consumption of the basic four foods clearly does not ensure that Recommended Dietary Allowances for all nutrients will be met. Second, the guide fails to address the concept of moderation with respect to intakes to avoid overnutrition, imbalance, and toxicity. Many parents want such dietary guidance. They are also concerned about such issues as the relationship between food, diet, and health as well as the safety and nutritional quality of the foods they buy. If Government refuses to make statements about these issues, consumers run the risk of being misinformed about food and diet by obtaining their information from the many unreliable sources that make pronouncements on these topics today. Although other reputable sources of information exist, most consumers have great difficulty in selecting reliable sources. They regard the Government as one such source. Therefore, even if definitive answers cannot be given, nutrition information produced by Government, which evaluates all sides of controversial nutrition issues and leaves the choice up to consumers, serves a purpose because it ensures that they are well informed and permits them the maximum choice. Similarly, a food guide that assists in modifying dietary intakes both to achieve greater balance

and to avoid excess would be useful to some consumers. However, such dietary guidance is immediately threatening to certain private interest groups in industry and to some programs within Government because it is more specific and may lead to eating less rather than more of certain types of foods.

In addition, complete consensus about every item in Dietary Guidelines is lacking, and controversy exists over issues of health promotion and diet-related disease prevention in the scientific community (*46*). Scientific knowledge in the field of nutrition is expanding rapidly, but findings, particularly on the relationships of diet to health, are still controversial. Nevertheless, the pros and cons on disputed questions can be described, and recommendations can be made for those who wish to follow the findings that may be beneficial and that will not be harmful to health.

Because of the differences of opinion within the scientific community, the potential opposition of some producer groups, and the growing sophistication of consumers about food and nutrition, Government's role in nutrition education has become more complex. A single message or food guide that will meet all of the public's wants is no longer appropriate. Government and other nutrition education efforts are confronted with the task of presenting the best available guidance and helping consumers distinguish between findings that involve different degrees of scientific certainty. As scientific knowledge increases, the nutrition message content may become more definitive, but in the meantime Government has a responsibility for evaluating and presenting information on what is known. At the same time, dietary guidance must be presented in ways that take into account individual wants and lifestyles while stressing the importance of some practices that can promote health and help to prevent certain diseases, such as increased physical activity, moderation in the use of alcohol and tobacco, and consumption of appropriate diets.

(2) *Organization.* The present organization of Government's nutrition programs is such that legitimate scientific disagreements are sometimes magnified by interagency and interdepartmental rivalries or even personal disputes between a few scientists. In addition, each agency has a tendency to regard the problem in the broader context of its overall mission. Thus, research-oriented programs insist that more research needs to be done; food-production-oriented programs emphasize that a minimum of disruption in the food supply system should be a criterion in establishing guidelines; consumer- and education-oriented programs stress the urgent need for practical advice; and health services agencies perceive dietary guidance as only one of many health promotive behaviors.

The Federal Government lacks a formal mechanism for reconciling these legitimate but differing points of view. Ad hoc arrangements do exist but they do not furnish a permanent solution to the structural difficulty.

To develop agreement on principles and consistent Government positions on specific issues, a formal means of evaluating controversial nutrition issues would be helpful. Several of the criticisms of Federal nutrition education and information programs will continue to apply because of the lack of such a means. These include the tendency to emphasize familiar time-worn concepts such as the basic-four food guide and dietary variety and the dissemination of conflicting and inconsistent

messages to the public while neglecting topics of greater concern to consumers. The end result will be further public disinterest and confusion.

In the past few years, the executive branch of Government took several steps to overcome these organizational problems. The Department of Health and Human Services formed subcommittees on dietary goals and nutrition education within its nutrition coordinating committee. It has also issued several guides to organizing child health services, which include attention to nutrition (*47, 48*). The USDA's Nutrition Policy Coordinating Committee developed an inventory of nutrition education and information activities and programs. An interdepartmental task force of the Nutrition Policy Coordinating Committee on USDA and HEW was appointed and issued Dietary Guidelines (*46*). Finally, a formal mechanism for coordinating nutrition-research-related issues is now planned, which will include the Office of Science and Technology Policy subcommittees on food and renewable resources and medicine and health. In spite of these efforts, the resolution of major nutrition issues upon which policy decisions depend and upon which nutrition education messages can be developed has been slow. It took 3 years of meetings at all levels of Government to develop a clear statement on nutrition guidelines. Inventories of USDA and DHHS nutrition education and information activities are still incomplete and disagreement continues on nutrition-research-related issues. Therefore, while these initiatives may have been useful and are better than nothing, their pace and effectiveness leave much to be desired.

(3) *No comprehensive strategy or national policy exists for nutrition education.* The current patchwork program approach results in an overall effort that does not serve the majority of the public and that leads to occasional duplication and overlapping. Formal mechanisms for coordinating Federal nutrition education efforts are lacking even for programs with similar goals. An even more serious problem is the lack of coordination between Federal, State, and local efforts. In addition, public programs are poorly integrated and coordinated with private and voluntary efforts at the national level and also frequently at State and local levels. This lack of a comprehensive strategy has led to the following problem.

(4) *A lack of evaluation and knowledge of the effectiveness and efficiency of Federal nutrition education programs is apparent.* Realistic estimates of the number of people being served, actual nutrition education expenditures, or the effects of the programs on participants are few in number. Only a few programs completed such studies until a few years ago. Three positive examples that date from the early 1970's are the following: the evaluation of a television film series entitled Mulligan Stew produced by the EFNEP, other rather limited evaluations of the EFNEP, and the various studies that evaluated the nutrition component of the maternal and infant care projects. The NET program is currently conducting an evaluation of some projects. The WIC program also evaluated some aspects of its nutrition education activities in the mid-1970's, and because of the negative findings, it has strengthened the education components of the program. The Child Care Food Program and Head Start are also being evaluated, and the nutrition education

components of these programs will be examined. The extension programs are also undergoing evaluations of a less formal nature. However, few if any evaluations of the nutrition education activities in the large multiservice education and health programs under the aegis of DHHS and the new Department of Education have been attempted, nor have most of the evaluations of school lunch or breakfast feeding programs for children focused on the possible nutrition education effects of the programs. Thus, it is difficult to judge the overall impact of Federal nutrition education programs on children.

The very programs that remain unevaluated in this respect are some of the most costly Government nutrition programs. Although most of them have multiple purposes, their size and reach makes it imperative to determine if they do in fact have viable and effective nutrition education components. If they do not, the development of education components for enhancing their effectiveness and efficiency should be considered.

(5) *Nutrition information programs are often unresponsive to public need.* Government nutrition information programs are characterized in the President's Reorganization Project report as operating on an "offer" rather than "serve" philosophy. That is, the type of information that was offered and the way in which it was offered did not serve the majority of the public well. The information was disseminated in a manner that reflected the regulatory, research, or other missions of the program involved rather than the concerns of consumers. The materials that do exist are rarely publicized, and few consumers are aware that information is available. Information is provided chiefly in response to requests from the public and indirectly relayed through food, education, and health specialists. For most consumers, Government-sponsored information is difficult to find. In part, this may be due to Government's failure to utilize other information channels such as the mass media, newspapers, popular books, and magazines for furnishing food and diet information and guidance. In contrast, other sources of information, such as advertising messages and promotional material from industry, are well financed and widely available.

The content of Government-sponsored nutrition publications is often out of date, neglectful of controversial subjects, overly general and simplistic, and sometimes inconsistent in the concepts presented. In addition, the formats frequently suffer from poor design and the materials are often poorly written. Finally, while some topics are not discussed at all, other materials are duplicated.

(6) *The reach of nutrition education programs for children is inadequate.* Formal education programs for elementary and secondary school children and other nonformal nutrition education efforts aimed at improving the nutritional status of special groups of children reach only a small proportion of their target audiences. They are usually uncoordinated at the Federal as well as at the State and local levels even when they are provided in the same sites. Professional rivalries, disagreements on overall policies, goals and strategies and funding priorities foster the lack of coordination at all levels of Government. In addition, the multiservice nature of many of these programs makes nutrition education everybody's and nobody's business at the same time. Nutrition education is only a

minor component of education and multiservice health programs, thus planning, budgeting, and monitoring of nutrition activities are often overlooked. As a result, duplication of services and failure to reach the majority of parents or their children are common.

(7) *The research base for nutrition education is weak.* The field of nutrition education lacks systematic studies of efficient and effective strategies. As a result, program decisions are often made on the basis of convention, convenience, or the personal preference of the provider. The contents of the messages that are delivered also vary greatly and often reflect the same rationale rather than the needs of the target group.

Two kinds of data are necessary for improved services. First, the needs of children for nutrition education must be assessed. These needs vary from one group of children to another by such factors as age, family income, and education, and special physical or social characteristics of the children and their families. No overall formula applies to all children. Second, messages or combinations of messages and other services (including, but not limited to, nutrition) must be developed and tested for their effectiveness in meeting the needs of children in these various groups and remedying the problems that exist.

Although there are various sources of data for conducting needs assessments (such as those discussed in section I of this report and additional information available elsewhere), relatively little information is available on how best to put these elements together into effective programs or what the trade-offs are for different combinations of services. Systematic studies of such issues as the factors that influence the dietary practices of specific target groups, the effectiveness of different methods in maintaining good dietary practices, and the cost effectiveness of different information and education approaches are urgently needed.

Studies of program effectiveness are also needed. Issues to be addressed include the level of effort needed to achieve minimal changes in the dietary behavior of specific target groups of children and better determination of points of diminishing returns (i.e., number of classes, home visits, or program "exposures").

Among several options, the President's Reorganization Project's Food and Nutrition Task Force recommended that nutrition education be consolidated on the basis of the target groups served by each department. It was suggested that USDA take responsibility for nutrition education and information provision to the general public, day care, elementary and secondary school programs, and community programs for low-income and other special groups. In addition, USDA would be given operational responsibility (with technical assistance from DHHS) for developing nutrition guidelines and food and diet guidance materials, assessing the nutrition education needs of the general public, and research on improving nutrition education and information. The nutrition education activities of DHHS would consist of those for preventing or treating specific diseases or disorders and those for dealing with nutrition as part of individual health services in the community. When these recommendations were made, the Department of Education had not yet been established and its responsibilities were not delineated in the recommendations. The difficulty with this division of labor is that neither agency has

been singled out with a specific mandate for preventively oriented nutrition education.

The recommended option was not implemented. In the 3 years since the report was published, some steps have been taken to coordinate nutrition education and information activities in existing agencies and to explore the possible roles of the Department of Education. However, a number of problems remain. Consensus on nutrition education's content and messages is still lacking. Committee planning and approval procedures have caused lengthy delays. The problem of gaps, overlaps, and the overall lack of a comprehensive Federal policy and strategy for nutrition education remains. Research on nutrition education remains fragmented and is modestly funded, so that policymakers still have little basis for selecting their nutrition education strategies. Program personnel receive conflicting directives and are confused. Apprehensions about the future role of the Department of Education are apparent among some USDA and DHHS program personnel. The DHHS rightly appears to be reluctant to settle for an organizational solution that would deprive it of the opportunity to provide nutrition information and education to the general public except for that directed at preventing or treating specific diseases or disorders, yet DHHS has not seized the initiative in the area at the program level in health promotion through diet. The Surgeon General's report *Healthy People* stresses the multiple combined factors that are involved in disease causation (including diet), the need for health promotion rather than disease-by-disease curative approaches, and the importance of multiple and coordinated interventions to prevent illness and preserve health. Such a holistic view of the continuum between health and disease emphasizes the positive aspects of individual behavior in promoting health rather than concentrating on the negative or risky behaviors that must be avoided to prevent disease. From this perspective it is difficult to separate health promotion from disease prevention and diet-related behaviors from other health-promoting and disease-preventing measures, which affect the same diseases. Given such a concept, there is room for both agencies as well as the fledgling Department of Education to become more active at the program level.

NUTRITION EDUCATION MANPOWER

The many professionals who are being trained specifically in child nutrition are difficult to identify and enumerate. Except in a few instances, as is the case of those specializing in nutrition training in programs that are known to be devoted primarily to children, the extent of child nutrition training is conjectural.

The quality and type of instruction provided is also unknown. It is hard to tell whether it emphasizes primary, secondary, and tertiary prevention, or whether it deals with public health or solely with "normal" child nutrition, to the exclusion of other issues. It is doubtful that existing training programs emphasize nutrition and health promotion, disease prevention, and the specialized needs of some children. These issues are important for the training of those who are not closely associated with

health care resources, such as those who will work in schools, the extension service, and food services. As more and more children with special problems are "mainstreamed," into schools rather than institutionalized or confined to their homes and special schools, the need for special nutrition services has increased even in these settings.

In addition, few specific training programs could be identified at the graduate level that provide both rigorous training in the nutrition and health sciences and communications skills that are necessary for improving the quality of services provided by nutrition education professionals.

The various individuals who must later function as a team providing nutrition and related services to children currently receive training in widely disparate educational settings. Interdisciplinary training appears to be the exception rather than the rule.

Another unanswered question is the extent to which programs that provide training in child nutrition complement and supplement one another. A positive example is short-term training of professionals working in a variety of programs funded by many different sources in infant nutrition at the University of Iowa Medical School. This has been sponsored for many years by the Bureau of Community Health Services, DHHS.

The content and quality of child nutrition training in university-based degree programs appears to have a number of gaps and shortcomings. The contents of on-the-job training and short courses are likely to exhibit the same weaknesses because those who teach them are ill-trained themselves. Many of the Federal programs that deliver nutrition-related services to children have short-term training courses for aides or paraprofessional assistants, which are provided as part of "on-the-job" training. Such is the case with EFNEP, child nutrition programs, and Head Start, for example. Even when those who provide this training are well trained themselves, their other duties and lack of appropriate training materials make the task difficult. In the past few years considerable progress has been made in upgrading and expanding training materials and in the development of performance standards for evaluating some of these programs, and those who provide the training have received additional inservice education. However, training staffs are usually too small for continuing and ongoing training of the teachers and aides on a regular basis.

The same problem exists among professional staff in the training field. Because many of them are members of professional organizations that require continuing education for maintenance of credentials, incentives exist for keeping up to date. However, continuing education in child nutrition is not always available.

Some nutrition service programs must rely on other sources or local resources for training materials. For example, the Indian Health Service's training programs do not have specific funds that are earmarked for materials, and those that are used must be borrowed from other community resources or provided by staff members themselves. Other nutrition service programs, such as the WIC program, have no specific funding for staff training and rely on other Government agencies and sources not only for materials but also for continuing education. The

instruction they receive may not be tailored to their needs or to overall program goals.

A major difficulty is how extension or EFNEP personnel cope with individuals who require therapeutic diets. The usual response is to refer the problem to nutrition specialists in other programs. However, such specialists are often not available. The answer is better distribution of nutrition specialists and health care services in underserved areas and removal of barriers to reimbursement for nutrition services. In the meantime, however, stop-gap arrangements must be developed.

Manpower

Among those who by virtue of their training, interests, or work are identified by others or identify themselves as nutritionists, it is immediately apparent that the type and level of training they have received, their academic degrees, their knowledge and skills, the focus of their interests, and their perspectives on nutrition vary widely. Moreover, even within most of the specialties, skills and competencies vary greatly because standards for training are not uniform. The Department of Labor employment statistics do not specify nutritionists and the related categories mentioned in this section. Therefore, informal estimates of professional associations must be relied upon. Even using the most liberal estimates, fewer than 100,000 persons are engaged in these activities on a paid basis. Greater than 75 percent of these persons possess baccalaureate degrees or less and are employed as dietitians, diet technicians, food service workers, or home economists. Not more than 5,000 of them hold a doctorate or equivalent degree in the field of nutrition. A small and unknown number of these persons devote most of their time to child nutrition.

Parents

In enumerating those who are concerned about child nutrition, it should be remembered that probably the largest group of dedicated individuals are parents. Like professionals, their concern for child nutrition stems from more than simply a legal responsibility or need to gain a livelihood. Moreover, they have more influence and experience in the feeding of their individual children than any other group of personnel. Therefore, they are included first on the list of those who play a major role in the provision of nutrition services to children. In many instances there is only one parent in the family, and in most instances formal education in nutrition is limited, although many have developed considerable nutrition knowledge and skill.

Nutrition Research Scientists

Nutrition research scientists usually hold a doctoral degree in some biological science such as biochemistry, physiology, animal science, or human nutrition per se.

Some nutrition scientists hold degrees that are specifically in the fields of nutrition or public health nutrition. Usually the degree includes considerable coursework in nutritional biochemistry and the biomedical sciences. Others hold degrees in biology, physiology, or biochemistry, with the latter group predominating. Biochemists study the biological structure and metabolism at the cellular and subcellular level and concentrate on problems such as dietary requirements for cell maintenance and identifying the chemical and physical structure of nutrients, their functions within the cell, and more general metabolism within the body.

Some physicians are engaged in biomedical and clinical research relevant to nutrition and focus on basic and applied issues. Many animal scientists have developed an interest in human nutrition problems through their work with animals in the study of human disease and comparative nutrition and animal health. Others, such as food scientists or food technicians and economists, may also participate in nutrition research.

None of the professional groups specify the courses that are required for the doctorate in human nutrition. Requirements vary greatly from one institution to another, although all institutions require graduates to demonstrate the ability to conduct independent research.

Estimates of the existing number of nutrition research scientists range from 2,000 to several thousand persons. The American Institute of Nutrition's members have made significant contributions to nutrition research, most of which is probably relevant to humans. Membership in 1977 was 1,730. The American Dietetic Association's members included 764 whose orientation was primarily research.

In 1976 the USDA's Federal and State experiment stations devoted 194 scientist-years to human nutrition. In 1979, 267 scientist-years were spent on research in human nutrition (*49*). In 1977, the National Institutes of Health (NIH) devoted 70 scientist-years to human nutrition research with 1,980 intramural investigators participating in these studies, 20 of whom were formally trained nutritionists. In addition, NIH supports several hundred extramural nutrition research persons through grants and contracts. In 1977 the Department of Defense had 20 lead scientists with doctoral level training who were engaged in human nutrition research.

In 1978–79, approximately 50 institutions awarded doctoral degrees in human nutrition and 40–80 new scientists enter this field at this level each year (*49*).

Approximately 75 institutions offer master's degrees in human nutrition. Most of these programs are in land grant universities. Estimates of the numbers of new graduates are not available, but probably amount to several hundred persons a year, some of whom choose research careers.

Public Health Physicians and Dentists

Training in public health varies. The most common type of formal education is that leading to the Masters of Public Health (M.P.H.), which is granted by approximately a dozen schools of public health in the country. Both "generalist" programs and programs that focus on a specific area (such as nutrition or maternal and child health) are available.

However, the majority of physicians and dentists who work in public health or community health positions probably do not have such a degree. They may have gained experience "on the job" or because of a personal interest in social medicine. However, their competence is highly variable.

The United States is estimated to have more than 1,500 public health nutritionists, 40 percent of them with master's degrees. The number of public health physicians and dentists with specific expertise in child nutrition, including M.P.H. degrees, is extremely small—probably less than a hundred. There are perhaps 10 times as many in the more general area of maternal and child health. They usually have at least one graduate level course in maternal and child nutrition.

Public Health Nurses

No data are available on numbers of public health nurses with nutrition training. The extent of training of these persons varies. The formal academic degree in the field is the M.P.H. Some nursing schools have master's programs that include substantial study in public health. Finally, there are various short courses and training in public health for health nurses with bachelor's degrees or diplomas. Very few of these programs have more than very basic courses in nutrition (often taught as part of a larger course), but most programs devote considerable attention to maternal and child health.

Public Health Nutritionists

A public health nutritionist is prepared by training at the master's level or above to provide all types of nutrition services in community health programs. Major responsibilities include planning and implementing the nutrition component of health care programs, recruiting, training, and supervising subordinate nutrition staff, coordinating nutrition with other care components, and evaluating the effectiveness of services.

Public health nutritionists usually receive master's degrees in schools of public health where they have specialized in the study of nutrition. Their undergraduate degrees are usually in one of the biological sciences or in food and nutrition at a college of home economics. In some but not all programs field training is required. These individuals have no registration examination, although an accreditation process is sponsored by the American Public Health Association for the schools of public health that the nutritionists attend.

Persons with M.P.H.'s in nutrition have had fairly standardized training. Programs generally follow the guidelines of the Association of Faculties of Graduate Programs in Public Health Nutrition. Requirements vary depending upon whether the career focus is upon medical public health or university teaching (*50*).

Sixteen institutions offer graduate degrees in public health nutrition, and two of these also offer doctorates.

In the past few years, a number of new schools of public health, which sometimes include nutrition curricula in their programs, have been

established. Also, several bachelor's degree programs in public health nutrition and community dietetics have opened. Many of their graduates work in public health settings, although the numbers are small as yet for those engaged in public health nutrition. Registered dietitians are another large group who often regard themselves as public health or community nutritionists and who work for public or voluntary health agencies. Some 450 members of the American Dietetic Association are employed in such settings.

Physicians Specializing in Clinical Nutrition and Other Aspects of Human Nutrition

Physicians who specialize in clinical nutrition have usually received in addition to their basic degree in medicine, residency training, board certification in some specialty, such as internal medicine, pediatrics, surgery, or preventive medicine, and some on-the-job training in nutrition. Formal education in the nutrition sciences is often lacking. Occasionally they also have obtained certification by the American College of Nutrition, a revivified professional accrediting organization. However, many senior level clinical nutrition specialists are not certified by this body and are more closely associated with the specialities in which they received the most of their training. Physicians with an interest in clinical nutrition are often members of the American Society for Clinical Nutrition if they are interested in research or the American Society for Parenteral and Enteral Nutrition if their interest is clinical in nature. There are probably only a few thousand physicians with special training or experience in clinical nutrition among the 350,600 M.D.'s and 12,100 D.O.'s in active practice in 1974 (*51*).

Other physicians specializing in basic nutrition research are generally board certified in some medical specialty and have additional formal training or experience involving human or animal nutrition research. Occasionally they may have obtained a higher degree such as a master's or doctorate in nutrition, public health, or biochemistry. There are no firm estimates of their numbers but it is doubtful if they exceed a few hundred at most.

Nurses Specializing in Clinical Nutrition

The handful of nurses who specialize in nutrition are trained in a variety of ways, but mostly inservice rather than formal education. For example, many nurses acquire considerable experience in nutrition because of their work on nutrition support teams. In the past few years a number of clinical nurse specialists programs have sprung up. Some programs consist of only a few months' training, others are master's programs of 1 or 2 years. A few special programs in midwifery are also available. These programs usually include some study of nutrition, but often it is minimal and only rarely is the course content equivalent to a graduate level or even an advanced undergraduate nutrition course. Clinical nurse specialists can also obtain master's degrees in nutrition or foods and nutrition, but this option is rarely chosen.

Dietitians

Dietitians specialize in planning balanced and nutritious meals and provide education and diet therapy for those referred to them by physicians. Federal estimates of dietitians and nutritionists employed in the health field in 1974 were 48,000.

Among the 23,000 members of the American Dietetic Association, in 1971 approximately 71 percent held bachelor's degrees, 23 percent master's degrees and 2 percent doctoral degrees, and 90 percent were registered dietitians (*52*). The majority (65 percent) were employed in hospitals or other health care facilities, 5 percent in public health agencies, 9 percent each as teachers or food service managers in educational institutions, and the remainder in Government and business. Currently, active membership of the American Dietetic Association is 31,000.[4] An additional 24,700 persons were employed as dietetic technicians or food service supervisors who were not dietitians and usually had received less formal training than the bachelor's degree.[4]

Most of the practicing dietitians in the country receive undergraduate degrees in home economics at land grant or other State universities. Those who major in foods and nutrition generally have stronger preparation in the biological sciences than those who major in home economics, food services, administration, or institution management. Until recently, a year-long internship was required in a teaching hospital or other accredited health-related institution for membership in the American Dietetic Association, and registered dietitians were required to pass a registration examination. Now it is possible to complete all of these requirements and to qualify for registration in a coordinated undergraduate program of 4 years that offers clinical or applied training and classroom work. Five- and six-year programs also are available, although there is a growing tendency for them to become internship–master's degree programs. Programs at both the undergraduate and graduate level are becoming increasingly specialized, and community, clinical, or administrative specialities are now required for accreditation by the American Dietetic Association. Programs must declare the types of personnel they are training, meet standards set down by the accrediting association, and undergo periodic reviews.

The homogeneity of dietetic training for the B.S. degree in foods and nutrition is greater than that for those who elect other vocational tracks. However, considerable differences in focus exist even at this level, especially in the quality and intensity of training in the biological sciences that students receive. In general, those who elect clinical dietetics receive training in biochemistry, physiology, and metabolism and have the most intensive health sciences preparation. Programs for administration concentrate upon the management of food services and associated operations, with greater attention to management and lesser emphasis on food and nutrition, and usually exclude biochemistry and other advanced courses in

[4]W. O'Connell, personal communication from an American Dietetics Association staff person specializing in membership, January 1980.

human nutrition. Community nutritionist training is sometimes a combination of the two or emphasizes basic knowledge in food and nutrition without biochemistry but with additional coursework in education and the social and behavioral sciences.

Nutrition Education Specialists and Community Nutritionists (Bachelor's and Master's Degree Levels)

An estimated 5,000 to 10,000 nutrition education specialists and community nutritionists exist with perhaps 5,000 employed as such today in the country. The Society of Nutrition Education has about 5,000 members.

Nutrition education specialists and community nutritionists are trained in any of the fields mentioned previously with some special preparation for teaching nutrition.

Most nutrition educators hold at least a bachelor's degree with a major in food and nutrition or more general programs such as home economics, education, or science with at least one course in human nutrition at the undergraduate level. Some nutrition educators have additional training as dietitians or hold a master's degree in foods and nutrition, nutrition education, or nutrition sciences. Most nutrition educators have basic knowledge in food and nutrition as well as education, evaluation of education programs, and the behavioral sciences. "Community nutritionists" usually have a special interest in community health or education programs.

Home Economists

Home economists are individuals who have received at least a bachelor's degree at 1 of the 300 institutions in the country that offer such programs. Most of these programs are located in land grant colleges and State university systems, and only a few privately sponsored institutions have such programs. At least 160,000 home economists are thought to exist in the country. The American Home Economics Association reported a membership of 43,000 in 1978.[5] Of these, 8,880 individuals in 1978 and 8,300 in 1979 were affiliated with the food and nutrition section, and presumably majored in these subjects as undergraduates. Approximately 20 percent of the home economists work as elementary and secondary school teachers, 8 percent in the extension services, 5 percent in human services, 11 percent in colleges and universities, 3 percent in business, and the remainder in a variety of other settings.

Training in human nutrition is highly variable among those who hold degrees in home economics; some individuals have considerable coursework in food and nutrition areas, and others have only a single basic course.

[5]Personal communication from the American Home Economics Association, December 1979.

Diet Technicians, Food Services Supervisors, and Nutrition Aides in Other Programs

These persons are subordinate to dietitians or food service managers and work in food services delivery in institutions such as hospitals, schools, and day care centers.

There are at least 30,000 diet technicians, food service supervisors, and nutrition aides. In 1974, 24,700 of them were estimated to be employed in the health field (*51*). In 1979, the EFNEP in the USDA employed some 3,700 persons as outreach workers and teachers of basic food and nutrition skills. A number of other Federal programs, such as Head Start, day care programs, and the like also employ persons who may have received short-term training in nutrition. Approximately 11,500 dietetic assistants, most of whom were trained in community colleges, are also working in the health field (see footnote 4).

Training among these individuals is variable, ranging from short-term training courses and on-the-job training (as with EFNEP aides) to formal and specialized associate degree programs. The trend is toward associate degree programs, which are growing at a rapid rate in community colleges.

With appropriate supervision, these individuals can perform many of the routine tasks that are involved in dietary or food services delivery.

Adequacy of Manpower Supply

Opinion is sharply divided about the existence of a manpower shortage that is inhibiting advances in nutrition education. The question has not been addressed comprehensively by any recent study, and reliable manpower training and employment statistics are not available. Therefore, a need for more data is indisputable.

Personal Health Services Versus Public Health Services

Personnel required for disease prevention consists of two major categories: those engaged in providing personal health services to individuals, and public health professionals mainly concerned with the health of populations (*53*). The personal health manpower category is judged to be adequate and includes physicians, dentists, pharmacists, podiatrists, nurses, physician's assistants, nurse practitioners and others working within the health care delivery system (*53*). However, the quality of services (especially nutrition services) is an issue and raises such questions as how the personal health services delivery system can be encouraged to increase its emphasis on disease prevention, what roles should various health professionals play in prevention, and how the education of health professionals can prepare them for their roles in disease prevention. While some adjustments in the manpower pool might be necessary, considerable potential for disease prevention is untapped within the current pool. Making health promotion and disease prevention a part of personal health services will require changes in the training of

health professionals, changes in the organization and financing of health services, and changes in consumer expectations of health care. Nonphysicians have a great deal to offer in disease prevention.

Nutrition Scientists

The Congressional Research Service (*54*) and the General Accounting Office (*55*) studies claimed that a shortage of nutrition scientists existed, while the Office of Science and Technology Policy (*56*) and the Office of Technology Assessment (OTA) (*28*) studies questioned this assertion. To guide Federal policy in manpower training (*57*), the OTA report suggested that a census be conducted of nutrition scientists, both working and in training.

Public Health Physicians, Dentists, and Nurses

One report on health manpower has concluded that, compared with personal health services manpower in general, professionals working in disease prevention are in relatively short supply (*53*). The numbers and abilities of those with child nutrition skills are relatively limited.

Public Health Nutritionists

There were 1,921 public health nutritionists at the local, State and Federal levels in 1978 (*50*). Of these, 45 percent provided generalized services; 32 percent were affiliated with the WIC program; 13 percent served in public agencies, education, or voluntary agencies; 7 percent served as administrators or consultants; and 2 percent in licensing and certification; less than 1 percent is unaccounted for. A personnel shortage appears to exist in this category.

Public Health Nursing

The shortage of public health nurses is less of a problem than is their lack of expertise in nutrition. Public health nurses' training should be modified to include skills for better identification and appropriate referral of nutritional health problems.

Medicine and Dentistry

Physicians (including pediatricians) who have expertise in clinical nutrition are in short supply, and the basic level of skill in nutrition is low for physicians in general. Training in pediatrics and family medicine tends to pay somewhat more attention to nutrition than do other subspecialties. A number of physicians are now being trained in clinical nutrition, but better training in nutrition is still needed for physicians.

Nursing

A serious shortage of nurses with specific expertise in child nutrition appears to exist. None of the major professional nutrition associations has

more than a handful of registered nurses. In nursing schools, if nutrition is taught at all, it is usually incorporated into a medical-surgical nursing course or taught separately to nurses by a dietitian rather than by nurses themselves, perhaps indicating that very little nutrition expertise exists among nurses. With over 1,000,000 nurses in the country, this lack is striking. Specialists in maternal and child health nursing tend to be better trained in nutrition than other nurses, but even at the master's degree level, preparation is weak, consisting of a course or two at most.

Dietitians

Opinion is divided on the need for additional dietitians. The American Dietetic Association argues the need for more personnel at both the registered dietitian and dietetic technician levels. In contrast, Yoder's more general analysis of manpower for the personal health care category, which includes dietitians, did not reveal shortages, although the basis for this conclusion was not stated (*53*). The issue hinges primarily on what services physicians wish to delegate and what they wish to do themselves. At present, there is increasing emphasis on physicians' taking responsibility for providing nutrition counseling of ambulatory patients in such specialties as family medicine, general medicine, and pediatrics, based in part on new views of the importance of these and other lifestyle topics in health and in part on the predicted surpluses of physicians in the next decades. These issues and the costs of various alternative providers need to be sorted out before sensible manpower planning can be done in dietetics.

Nutrition Educators and Home Economists

Little information exists on the adequacy of supply of nutrition educators and home economists. The Society for Nutrition Education states that shortages of appropriately trained people are evident.

Quality of Training

Opinion is also sharply divided on how well students are prepared for dealing with current nutrition problems. The evidence is good that, in some areas, reorientation is long overdue and that training programs are out of date. The disputes center less on whether to incorporate new material and courses into existing curricula than on how it is to be done. The difficulty is in deciding what current studies are to be eliminated to make room for new courses and emphases.

Training for Research

The Office of Technology Assessment report (*28*) suggested that training methods were of equal if not greater concern than the number of persons trained, because the development of knowledge in the 1980's is likely to require different skills than those required traditionally. The report specifically suggested that doctoral training in the nutrition sciences

and related disciplines should stress diseases affected by diet, nutritional pharmacology, the principles of food science, and evaluation and assessment of nutritional status. Public health nutrition research should place greater emphasis on nutrition-related fields such as epidemiology, behavioral sciences, health services administration, nutrition policy, and community organization without losing its strong basic core in the nutrition sciences. The report also recommended that postdoctoral training should include clinical or community work and exposure to the diet-related health considerations of both healthy and ill persons.

Training in Public Health Nutrition

The major problem in public health nutrition appears to be lack of personnel rather than inappropriate training. However, training might be helpful in skills for assisting those who are not nutrition specialists, such as nurses, to identify and deal with nutrition-related problems. There should also be greater emphasis on recruiting and training individuals who wish to work in medically underserved rural areas where needs for public health nutrition services are particularly great. Needed skills include clinical dietetics as well as public health, since the individual may have to serve as a backup consultant for others providing personal health services.

Nutrition Training of Physicians and Dentists

Thanks to the recent emphasis on the importance of basic clinical nutrition skills for physicians, some progress is being made. However, in most medical schools, nutrition is still treated perfunctorily and relegated to elective status or an occasional related lecture, and it is generally not regarded as important enough to merit an alteration in an already crowded curriculum. Greater emphasis in undergraduate medical education should be put on both the knowledge base (e.g., nutritional biochemistry and physiology) and clinical practice in nutrition to improve patient care. One of the major difficulties impeding the training of medical students is the lack of qualified faculty. In addressing this problem, the Nutrition Cluster Report of the President's Biomedical Research Panel suggested that 25–40 postdoctoral fellowships per year in clinical nutrition be granted to promising young physicians (*58*). The same report recommended that Federal funds be provided for the creation of 10–15 faculty positions in clinical nutrition across the country within key medical schools. After a limited period, support would be furnished by the medical school or teaching hospital. Many of these ideas have been incorporated into the clinical nutrition research unit concept first funded in 1979 by NIH. These units are designed to provide a base for clinical nutrition research, to teach medical and other students in the health professions, and to provide community services within academic medical centers.

The undergraduate curriculum in dentistry should include more emphasis on clinical nutrition and prevention-oriented nutrition which are relevant for dental practice.

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The new emphasis on primary care in medical schools is commendable, but as it is currently visualized, it is doubtful that either the competencies in dietary treatment (as opposed to diagnosis) of the average physician or their geographical distribution will be such as to allow dispensing with the services of dietitians and nutritionists. Therefore, manpower planning exercises, which make such assumptions, are unlikely to be fruitful. They may well add to, rather than subtract from, the costs of delivering health care services involving nutrition, and the services that are provided may be of poorer quality unless more attention is paid to clinical nutrition treatment issues and appropropriate referrals to allied health professionals in revised curricula.

Nurses

Clinical nutrition appears to have disappeared from nurses' training since the curriculum reforms of the 1960's and 1970's. Training should include nutritional status screening and referral procedures for patients suspected of being at high nutritional risk. Nurses, not physicians or dietitians, are the most likely to have frequent and intimate contacts with patients, which permits them to identify frequently subtle nutritional problems. Nurses are also in an ideal position to reinforce and monitor any necessary nutrition interventions. It is time for nursing schools to strengthen their human nutrition components. "Out-breeding"—that is, training future faculty members outside of nursing schools in nutrition sciences, clinical nutrition, and public health nutrition—is needed because at present the nursing schools lack the faculty to do the job themselves.

Dietitians

Fundamental biomedical knowledge and new technologies must be transferred into training and clinical practice. More emphasis should be made on disease prevention through better screening and case funding.

The dietitian is now frequently charged with screening hospitalized and ambulatory patients to identify those who are in need of further assessment and services. Once those at risk are identified, the dietitian must work with other health care personnel to provide appropriate interventions. Nutrition support techniques employed today require a much greater knowledge of metabolism, diet-drug interactions, and the underlying pathophysiology of the illness and more teamwork in the provision of care than dietetics did a decade ago. These trends are likely to continue.

More instruction on prevention of the most common diet-related diseases and conditions should be also encouraged in the training of dietitians, especially those who plan to practice in ambulatory settings. Basic concepts of epidemiology and risk should be emphasized in the community dietitian's training to focus on the many in need of services. Finally, dietitians need more training in group teaching methods with regard to such subjects as diet, drugs, exercise, and smoking. Although individualized dietary counseling will always be necessary for some

patients, dietitians have not yet tapped the potential of group approaches to teaching for some diet-related health problems. It is essential that future physicians become better trained in recognizing nutritional problems and referring patients who require dietary therapy.

Home Economists

Home economists often lack the specialized expertise necessary to interpret technical research to laymen and deal with large numbers of people who rarely encounter other nutrition specialists. They often do not have appropriate information because of the failure of the nutrition science and clinical community to transfer such information effectively. Given such information, home economists are able to package and shape it in the form that is most relevant and appealing to their audiences. Training needs are twofold: stronger preparation in the nutrition sciences, and greater attention to information transfer through group and mass media methods.

Associate Degrees

The training of associate degree level workers is not standardized and usually takes place in technical institutes of community colleges that are quite separate from the institutions in which other nutrition professionals are trained. Such separation makes it difficult for new developments to be incorporated easily into training curricula, unless a conscious effort is made to bring instructors in associate degree programs into the larger academic community instead of regarding vocational instruction of this type as a totally separate activity. At present, persons trained in such settings are ill equipped to deal with clinical nutrition issues in situations in which supervision is inadequate or sporadic, as it sometimes is in nursing homes or other extended care facilities.

Primary and Secondary School Teachers

The vast majority of primary and secondary school teachers have had no formal training in either general nutrition or child nutrition. The only likely exceptions are teachers of home economics or health education at the secondary level. Some primary school teachers have taken short inservice courses in nutrition, but this is hardly a substitute for formal education. Well-taught courses in child nutrition at teacher training institutions are urgently needed. In addition, most school systems do not have nutrition education specialists available for consultation with classroom teachers, nor are such specialists always available at the State level. The USDA's NET program has funded some nutrition education positions as well as short courses for teachers and the development of nutrition materials for classrooms, but a great deal remains to be done. Other programs, such as the USDA's child nutrition programs, have also developed short courses for the training of school food service personnel, but most of these persons do not teach in the classroom. Some funds were

made available by the Office of Education to carry out inservice workshops and curriculum development efforts, and private groups such as the National Dairy Council have also sponsored a variety of short courses for teachers. Funding tends to be sporadic, however, and no efforts to date have led to mandatory training in nutrition for teachers. In the past few years, some States have legislated that health education (which usually includes nutrition) be taught as a required subject in the schools. This requirement may strengthen the case for including a required nutrition course at the undergraduate level in teacher training.

An Example: Ways to Strengthen the EFNEP in Child Nutrition

The Expanded Food and Nutrition Education Program of the USDA has lately been the subject of a number of studies (*57, 59–66*). The EFNEP might be strengthened through more inservice education for the home economics extension agents, who are the trainers of the aides. Specific training geared to child nutrition might be developed by the national office, utilizing some of the excellent self-study texts, movies, and other materials that have already been developed by many of the State extension service offices and that should be more widely disseminated. Collaboration among DHHS, USDA, and voluntary agencies in developing the training program would provide the means for combining the most effective program content with the most effective means of communication. Special attention should be given to appropriate sources of referral for health problems and to develop a more simplified kit of training materials for program aides in EFNEP. Once developed, these materials could be disseminated to the States for use as the basis of inservice education for extension home economists. Chief food and nutrition specialists and other relevant health professionals can also be enlisted as visiting faculty.

A second way to strengthen the program would be change the system of recruiting families for the EFNEP to ensure that the neediest families are the first to receive attention. Public health and welfare referrals could become the source of outreach information as well as provide necessary backup services. Supervision, however, would remain with the extension home economists.

A third way to strengthen the program is through training to increase the skills of the extension food and nutrition specialists by recruiting those with expertise in child nutrition or encouraging existing staff to take courses in child nutrition.

Resident faculty at the land grant colleges and universities might also receive additional training in child nutrition, and more research monies might be devoted to research in this area.

Human nutrition research at the USDA is funded at $36 million (80 percent USDA Federal funds), and 267 scientist-years are in 386 research projects. Extension programs are funded at $59 million, and 1,654 professionals and 3,718 paraprofessionals (most of whom are concerned with EFNEP) are employed. These data suggest that findings from nutrition education research programs would find a ready audience.

At present the USDA has no specific program for training nutrition scientists for nutrition education research, applied purposes, or specifically for training in child nutrition.

Training Issues: Basic Versus Applied Training and Education

The appropriate mix of theoretical and applied training for nutrition research, teaching, and service delivery is a matter of some dispute. The type and amount of education varies from one subspecialty to another, but also within specialties. Existing reports on manpower do not deal with these issues in depth as they affect the nutrition field (*58, 67–69*). Some of the newer studies begin to approach the problem (*70*), but collecting statistics remains a problem (*71*).

Approximately half of those with doctorates who work in nutrition positions apparently were trained in nutrition departments in university graduate schools (*49*). The others probably hold degrees in biochemistry, physiology, and chemistry, and fewer have degrees in animal or food sciences. Only a very small number hold degrees in economics or the social sciences. Many nutrition positions are filled by persons with specific doctorates in nutrition. These scientists may be cut off from advances in many of the basic disciplines (other than their more general area of training) that would contribute to fundamental knowledge in the nutrition field. The disadvantage applying to the other specialists with more basic scientific training is their often extremely narrow perception of the field of nutrition as a whole due to training that focused on only one element within the broader field. Perhaps collegial interaction will deepen the former and broaden the latter, and the best solution is a mix of individuals trained in many disciplines.

The vast majority of those who hold master's or baccalaureate degrees in nutrition are trained in nutrition or other "applied" fields such as education or dietetics. In order for those with degrees in the liberal arts or the biological sciences to obtain master's degrees in applied nutrition (such as that required in dietetics, WIC, or the child nutrition programs), they usually must do a great deal of "remedial" course work in specialty areas. This lengthens the course of study and perhaps discourages some bright young people from entering the field. This problem is particularly true for those trained in the social and behavioral sciences, who find making up courses in chemistry and physiology onerous. Flexible yet rigorous programs are needed to overcome these obstacles.

NEW DIRECTIONS FOR THE 1980's: THE NATIONAL CONFERENCE ON NUTRITION EDUCATION OF 1979

In late 1979, major existing agencies concerned with nutrition education sponsored a joint conference (*40*). Education, nutrition, and communica-

tion professionals as well as consumers participated in the conference deliberations and conference preparation.

The recommendations of the task forces for each of the relevant target groups varied, but 10 issues of general concern were raised in all four reports. These were as follows:

(1) One of the goals of nutrition education should be the provision of readily accessible information and public messages about the prevention of disease as well as the promotion of health through diet and the treatment of illness and dietary support of medical treatment.

(2) The pace of development of nutrition education messages for specific groups, outreach efforts, consumer protection, and greater use of the mass media must be speeded up.

(3) Consumer advocacy as well as provider advocacy is seen as necessary to improve the status of nutrition education efforts.

(4) Coordination must be improved between and within Federal departments as well as at State and local governmental levels and with voluntary and private groups.

(5) Training of those who train the nutrition educators is a necessary first step for improving nutrition education.

(6) Financing of nutrition education, including patient counseling, is also an essential prerequisite.

(7) More research is needed on nutrition education.

(8) Nutrition education programs need to be evaluated.

(9) Followup efforts to ensure implementation of the recommendations are needed.

(10) Linkages among nutrition education and food or income assistance and health and education programs are needed at Federal, State, and local levels.

The recommendations of the task force on children, adolescents, and pregnant women were as follows:

(1) Nutrition education needs a new orientation, both with regard to message content and methods of delivery.

Message—Nutritionists and others responsible for nutrition education must reach a consensus on the basic messages that are relevant to each of these target groups and acknowledge those areas in which controversy exists if consensus is not yet possible.

Delivery—With the use of techniques based on market research, attitudinal and behavioral change should be promoted where necessary among consumers and sound nutrition practices should be reinforced.

Leadership Coordination and Advocacy—A federally supported national nutrition council of diverse membership should be established for a 3-year period and should invite participation of the private sector. Such a council would provide leadership, serve as an advocate for nutrition education, advise the Federal Government, provide a forum for exchange of information, develop policy, encourage and oversee coordination of nutrition education, provide followup of the National Nutrition Education Conference, and monitor progress in implementing recommendations.

(2) Nutrition messages must be matched with the perceived needs and cultural, social, and economic characteristics of target groups.

(3) Nutrition education curricula for preschools, primary, and secondary schools must be evaluated and, if necessary, designed specifically for the target group needs and perceptions.

Criteria must be established for assessing the scientific accuracy of food message content, curricula, and training guides. The criteria should be periodically reviewed by appropriate professional groups and updated information disseminated.

The Federal Government should evaluate nutrition education materials and curricula and share the results with State and local groups.

A common core of objectives should be addressed in addition to program specific activities. For each specific program, behavioral objectives and performance standards must be established under the direction of competent nutritionists and those from other appropriate disciplines.

All nutrition education professionals and paraprofessionals should have access to inservice and continuing education.

Nutrition educators need more training in processes that help people to make informed decisions about choices of food other than the mere distribution of information.

(4) More innovative use must be made of informal and nonformal settings for nutrition education such as waiting rooms in health care facilities, correctional institutions, recreational centers, libraries, food markets, laundromats, beauty salons, and the workplace to reach children and parents with nutrition education.

The Department of Health and Human Services should ensure that standards and criteria for health care programs include specific requirements for nutrition services including counseling and education.

Greater emphasis on community participation and self-help in developing nutrition education programs is also needed.

(5) The mass media and other new technology should be used more effectively to improve the image of nutrition and to initiate large-scale change in attitudes about healthful eating.

Programs to support general nutrition education efforts as well as special nutrition messages for particular concerns or issues should be developed by commercial as well as public service and educational television. Priority should be given to developing high-quality nutrition messages with a specific focus.

A study of the feasibility of utilizing new technology for nutrition education should be undertaken by the communications industry, and the findings shared with persons in the nutrition and education fields.

(6) Evaluation of nutrition education should receive more emphasis. Support services for evaluating nutrition education efforts should be developed and expanded in collaboration with professional groups in both nutrition and education. Nutritionists should receive training in evaluation during their formal education.

All Federal food and nutrition assistance programs including grantee programs should require and fund evaluations. These include school meals, Head Start, public health nutrition services, nutrition education, and training programs.

(7) Research in nutrition education must be expanded. The Departments of Agriculture and Health and Human Services must give priority

to research that will provide basic data and other information about target populations. Many other areas of nutrition education research need attention. These include effective delivery methods and techniques, approaches to learning, appropriate packaging of nutrition knowledge for specific groups, evaluating curriculum evaluation, changing childhood perceptions of the relationship between food, nutrition, and health, surveys on the food habits of ethnic groups, and epidemiological surveys to identify the nature, magnitude, and location of nutrition problems so that appropriate nutrition education can be developed. The two departments should give high priority to implementing a cooperative national nutrition status monitoring system. All of the Federal agencies with nutrition education programs must review their requirements for grant applications to encourage a comprehensive approach to the development, implementation, and evaluation of nutrition education research and programs.

(8) The Departments of Agriculture and Health and Human Services along with other Federal agencies and organizations should coordinate their approaches to nutrition education. The National Academy of Sciences or some other agency could serve as a focal point for an interdepartmental task force to identify priorities in nutrition education, obtain agreement on the messages, and coordinate agency responses.

The Departments of Agriculture and Health and Human Services, as well as other agencies, if appropriate, should sponsor two or three community nutrition education model programs. These could then be replicated in other communities.

(9) Nutrition education needs more financial support. Federal agencies responsible for nutrition education programs or services should have sound cost-effectiveness data, and if program funds are inadequate to implement all nutrition education efforts, program administrators should establish priorities for Federal fund grantees.

Nutrition counseling services should be reimbursable as a health care service. Federal legislation and regulations should provide for such reimbursement.

Today payment mechanisms for health services are such that third-party reimbursements for preventive services are few in number and nonexistent for many prevalent problems, such as obesity. Such payment schemes inhibit the provision of some necessary services. They probably also limit the number of providers of some services.

In 1976 the Institute of Medicine recommended that third-party payers should pay for effective health education for their clients and preventive services including those in nutrition. It was believed that such payment would expand access to such service (*70*). As yet these recommendations have not been implemented.

CONCLUSIONS

The changes in societal and health problems affecting children call for new responses on the part of Government today (*72–76*). Federal nutrition program success has been considerable over the past decade. But

because of outmoded message content, antiquated delivery systems, and organizational problems at Federal, State, and local levels, nutrition education components are greatly in need of improvement (77).

Nutrition education expenditures constitute only a small fraction of nutrition program funds, or about $120 million. This dollar amount is several orders of magnitude less than the money spent on advertising and promotional efforts directed specifically at children for the purpose of modifying food choices. The Federal nutrition education effort is insufficient. Several critical weaknesses in existing efforts must be remedied. Before additional funds are allocated on a large scale, pilot programs must be mounted to resolve these issues:

(1) *Confusion Regarding Message Content in General and for Specific Target Populations in Particular.* Confusion is rampant regarding the message content of Government-sponsored nutrition education efforts for children. Should they stress only sufficiency of food intakes or both sufficiency and moderation? What special emphasis should be given for children from low-income families? Finally, what are the special messages that are necessary for children with special physical or social characteristics?

(2) *Sluggish Federal Mechanisms for Achieving a Working Consensus on Nutritional Guidelines for Children and Adolescents.* The slow progress in reaching consensus on appropriate nutrition messages reflects lack of scientific consensus to some extent, but also the inability of Federal agencies to deal in a timely manner with issues that cut across professional disciplines and executive departments.

(3) *Problems in Defining and Reaching Target Groups.* The responsibility of the various departments, agencies, and programs is not clear cut for nutrition services for children according to their demographic, social, educational, and physical health characteristics. As a result, some groups of children have suffered from nutrition education overkill and have had the same messages repeated over and over again while other relevant messages and larger groups of children are overlooked entirely.

(4) *Program Patchwork.* A patchwork of nutrition education programs in three executive departments (Agriculture, Education, Health and Human Services) exists with little common direction within either the executive or the legislative branch of Government. Definitions of what constitutes a program vary. Depending upon the definition chosen, 19, 25, 26, or 27 programs with a nutrition education component were discovered out of the 37 more general nutrition programs serving children. The majority of these are multiservice programs in which nutrition education or information is an unplanned, unprogramed and often an unbudgeted service. The effectiveness and efficiency of the nutrition education in most of these programs have not been studied.

(5) *Inadequate Outreach.* Only a small proportion of children are reached by any of the nutrition education programs. Two of the meal programs, the School Lunch Program and the Special Supplemental Food Program for Women, Infants, and Children (WIC), appear to reach a somewhat higher proportion of the eligible population.

(6) *Ineffective Modes of Delivery.* Government nutrition education materials are difficult to obtain, and educational methods and strategies employed are often untested and unevaluated.

(7) *Organization of Government Contributes to Rather Than Alleviates These Problems.* Federal, State, and local Government structures and regulations are often at cross purposes.

(8) *Inadequate Professional Preparation.* Many of the professionals charged with providing nutrition-related health, education, or food services are inadequately trained.

RECOMMENDATIONS

(1) *More Highly Integrated and Better Inventories of Present Program Efforts.* The two major agencies continue to use different definitions and schemes for classifying nutrition education and related programs and materials. A single set of definitions and a matrix for classifying programs and materials should be agreed upon and adopted by both agencies to achieve an overall picture of nutrition education activities in the United States. This will result in a clearer assignment of responsibilities among and within Federal departments, agencies, and programs. Similar data gathering and consolidation activities have been suggested for other Government programs (*71*).

(2) *More Coordination and Integration of Congressional Oversight Activities.* Coordination at the congressional level can do much to eliminate excessive duplication and to stimulate cooperation among the executive departments and programs.

(3) *Cost Accounting Systems With Budgetary Breakouts for Nutrition Education and Related Nutrition Services.* Budgets for nutrition-related activities are extremely difficult to discern for many programs. Better data on actual expenditures and more explicit rationales for estimates are urgently needed, especially in DHHS and Department of Education programs.

(4) *Greater Simplification and Specification of Eligibility.* The General Accounting Office recently has recommended standardizing eligibility and improving referral systems among programs (*45*).

(5) *Extension of Services to Eligibles Who Are Most in Need and Not Yet Being Reached.* Such a measure also requires more sophisticated reporting systems than are currently available for most programs.

(6) *Better Coordination Among Federal Health, Education, and Nutrition Programs That Reach Children at Single Locations.* Closer linkages between food, health, and education programs in day care centers, schools, and other settings are needed.

(7) *More Emphasis on Efforts That Reach the Child in the Home.* Mass media or other nutrition education efforts that reach the child in the home can enlist parent support. Because only a few programs currently reach the child at home, more emphasis in this direction should be seriously considered.

(8) *Better Referrals Between Programs.* With the exception of the food programs, few of the general nutrition education programs for all children provide for those with special needs and at greatest risk. The categorical programs that do cover these special groups often do not include the services included in the more general programs. Better referral systems could lead to children in special groups being given special status in the more general nutrition education programs, which maintain a broad program base.

(9) *Reviews of the Effectiveness of Various Nutrition Education Programs and Appropriate Reformulation If Necessary.* New strategies may be better suited than existing efforts for achieving program effectiveness.

(10) *Elimination of Unnecessary Red Tape and Regulations.* Many DHHS and Department of Education programs lack documentation of costs and delivery of nutrition services; however, USDA programs require tedious paperwork and cost-reporting procedures. The USDA should streamline its reporting systems while preserving the essentials necessary for program evaluation. The other agencies need to put theirs in place.

(11) *More Emphasis on Nutrition Education That Is Linked Closely With Health Promotion and Disease Prevention Programs for Children.* Dental caries, obesity, iron deficiency anemia, and diet-related risk factors for a number of chronic degenerative diseases occur relatively frequently to children during the first and particularly the second decades of life. The results of several demonstration projects indicate that nutrition education programs that incorporate these elements are well accepted by primary and secondary school students. Yet no major State Government program has incorporated all of these elements into its nutrition education curriculum. Federal assistance may be needed to foster such efforts.

(12) *Implementation of the Specific Recommendations of the National Nutrition Education Conference's Task Force on Children.* These recommendations include specific measures for addressing the above issues within the existing bureaucratic structures.

(13) *Delineation of the Department of Education's Role in Nutrition Education.* Nearly all of the nutrition-education-related programs in the former HEW Office of Education are now transferred to the new Department of Education. Delineation of projected nutrition education activities, consolidation of existing programs, and the forging of links with other relevant Federal departments are necessary to avoid problems of coordination and excessive duplication.

(14) *Conclusion.* As the national dialogue on the unmet needs of America's children continues (*70, 72–76*), attention needs to be paid to nutrition and nutrition education (*77*).

A growing consensus is emerging to promote health and prevent disease in children by taking these steps to improve their nutrition:

- Ensure that all American children achieve sufficient intakes of nutrients.
- Provide appropriate nutrition information and education so that children are fed and will choose to eat diets that promote health by avoiding insufficiencies, imbalances, and excesses of nutrients

or energy and minimize dietary and other related risk factors for disease.

- Meet the special nutritional needs of certain groups of children by providing appropriate diet counseling and food and health assistance.
- Apply what is already known and continue progress in research and training in human nutrition to improve the health of children.

REFERENCES

(1) Merrit, D. H. *Infant Nutrition.* Stroudsburg Pa.: Halsted Press, 1976.

(2) National Council of Organizations for Children and Youth. "America's Children: A Bicentennial Assessment." National Council of Organizations for Children and Youth, Washington, D.C., 1976.

(3) Schaefer, A. E. "Nutritional Needs of Special Populations at Risk." *Annals of the New York Academy of Sciences* 300: 419–429, 1977.

(4) O'Brien, D. and H. P. Chase. "The Assessment of Nutritional Status in Individuals and Population Groups." In *Pediatric Nutrition Handbook*, pp. 72–90. American Academy of Pediatrics, Evanston, Ill., 1978.

(5) Owen, G. and G. Lippman. "Nutritional Status of Infants and Young Children, USA." *Pediatric Clinics of North America* 24: 211–228, February 1977.

(6) Popkin, B. M., J. Akin, M. Kaufman, and M. MacDonald. Report to the Select Panel on Child Health (Preliminary Draft), University of North Carolina at Chapel Hill, December 1979.

(7) Fomon, S. J. *Nutritional Disorders of Children: Prevention, Screening, and Follow-Up.* U.S. Department of Health, Education, and Welfare, Washington, D.C., DHEW Publication Number (HSA) 75–5612, 1976.

(8) Connor, W. E. "Too Little or Too Much: The Case for Preventive Nutrition." *American Journal of Clinical Nutrition* 32: 1975–1978, 1979.

(9) *Pediatric Nutrition Handbook.* American Academy of Pediatrics, P.O. Box 1034, Evanston, Ill.

(10) Elinson, J. and R. W. Wilson. "Prevention." In *Health: United States 1978*, pp. 21–42. U.S. Department of Health, Education, and Welfare, Washington, D.C., DHEW Publication Number (PHS) 78–1232, 1979.

(11) Kovar, M. G. "Children and Youth: Health Status and Use of Health Services." In *Health: United States 1978*, pp. 42–66. U.S. Department of Health, Education, and Welfare, Washington, D.C., DHEW Publication Number (PHS) 78–1232, 1979.

(12) U.S. Department of Health, Education, and Welfare. *Nursing Problem Classification for Children and Youth.* Public Health Service, Health Services Administration, Bureau of Community Health Services, Rockville, Md., DHEW Publication Number (HSA) 77–5201.

(13) U.S. Department of Health, Education, and Welfare. *Nutrition Problem Classification for Children and Youth.* Public Health Service, Health Services Administration, Bureau of Community Health Services, Rockville, Md., DHEW Publication Number (HSA) 77–5200.

(14) Yankelovich, Skelly and White, Inc. *Raising Children in a Changing Society.* General Mills, Inc., Minneapolis, 1979.

(15) Yankelovich, Skelly and White, Inc. *Family Health in an Era of Stress.* General Mills, Inc., Minneapolis, 1979.

(16) Committee on Dietary Allowances, Food, and Nutrition Board. *Recommended Dietary Allowances*, 9th ed. National Academy of Sciences, Washington, D.C., 1979.

(17) U.S. Department of Health, Education, and Welfare, Public Health Service. Healthy People: *Surgeon General's Report on Health Promotion and Disease Prevention.* Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79–55071, 1979.

(18) U.S. Department of Health, Education, and Welfare. *Disease Prevention and Health Promotion: Federal Programs and Prospects.* Report of the Department Task Force on Prevention. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79–55071B, 1979.

(19) Institute of Medicine, National Academy of Sciences. *Healthy People: Background Papers for the Surgeon General's Report on Health Promotion and Disease Prevention.* Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79–55071A, 1979.

(20) Dwyer, J. T. "Nutrition in Mothercraft: Nutrition during Growth and Development." In *World*

Nutrition: A US View, pp 77–94. J. Mayer and D. Campbell, eds. Voice of America Forum Series, Washington, D.C., 1978.

(*21*) Kotz, N. *Let Them Eat Promises: The Politics of Hunger in America*. Englewood Cliffs, N.J.: Prentice-Hall, 1967.

(*22*) Citizens' Board of Inquiry into Hunger and Malnutrition in the United States. *Hunger USA*. Boston: Beacon Press, 1968.

(*23*) Mayer, J. *U.S. Nutrition Policies in the 1970's*. Bull Publishing Company, 1973.

(*24*) Egan, M. C. "Federal Nutrition Support Services for Children." *Pediatric Clinics of North America* 24: 229–240, 1977.

(*25*) Zee, P. "Three Steps Forward and One Step Back." In *Food in Contemporary Society*, pp. 169–172. Proceedings of the Stokely-Van Camp Annual Symposium, College of Home Economics, University of Tennessee, Knoxville, 1979.

(*26*) Schlossberg, K. "Nutrition and Government Policy in the United States." In *Nutrition and National Policy*, pp. 325–360. B. Winnicoff, ed. Cambridge, Mass.: MIT Press, 1978.

(*27*) Quimby, F. H. *Hunger and Malnutrition in the United States: How Much?* Congressional Research Service, Library of Congress, Washington, D.C., 1977.

(*28*) Office of Technology Assessment. *Alternative Nutrition Research Strategies*. Office of Technology Assessment, U.S. Congress. Washington, D.C.: U.S. Government Printing Office, 1978.

(*29*) Comptroller General's Report to Congress. *Informing the Public About Nutrition: Federal Agencies Should Do Better*. U.S. General Accounting Office, Washington, D.C., 1978.

(*30*) Michelman, K. C. *The Role of the Federal Government in Nutrition Education*. A study prepared by the Congressional Research Service, the Library of Congress for the Subcommittee on Domestic Marketing, Consumer Relations and Nutrition of the Committee on Agriculture, U.S. House of Representatives. Committee Print, 95th Congress, 1st Session. Washington, D.C.: U.S. Government Printing Office, March 1977.

(*31*) Michelman, K. C. *A Look at the Role of the Federal Government in Nutrition Education Since 1976*. Congressional Research Service, Library of Congress, Washington, D.C., 1978, unpublished.

(*32*) French, C. *Food and Nutrition Study: Final Report*. President's Reorganization Project, Executive Office of the President, Office of Management and Budget, Washington, D.C., 1978.

(*33*) *Food*. U.S. Department of Agriculture, Washington, D.C., 1979.

(*34*) Committee on Appropriations, U.S. Senate. *Prototype Inventory: Federal Food, Nutrition, and Agriculture Programs*. Washington, D.C.: U.S. Government Printing Office, 1979.

(*35*) Broad, W. J. "Nutrition's Battle of the Potomac." *Nutrition Today* 14: 6–12, 1979.

(*36*) Hallahan, I. A. "Nutrition Games on Capitol Hill." *Nutrition Today* 14: 24–25, 1979.

(*37*) Bureau of Community Health Services. *Federal and Non-Federal Resources for Nutritional Information and Services: A Selected List*. U.S. Department of Health, Education and Welfare, Public Health Service, Health Services Administration, Bureau of Community Health Services, Rockville, Md. Washington, D.C.: U.S. Government Printing Office, 629-946/2438, 1979.

(*38*) Mertz, W., ed. *Proceedings of the Beltsville Agricultural Research Conference on Human Nutrition*. U.S. Department of Agriculture, Washington, D.C., May 1979, in press.

(*39*) Simopoulos, A. P. *The Biomedical and Behavioral Basis of Clinical Nutrition: A Projection for the 1980's*. Report of a National Conference sponsored by the Nutrition Coordinating Committee, National Institutes of Health. Washington, D.C.: U.S. Government Printing Office, NIH Publication Number 80–1970, November 1979.

(*40*) Dwyer, J. T., ed. "Proceedings of the National Nutrition Education Conference." *Journal of Nutrition Education*, Supplement 1, July 1980.

(*41*) Cross, A. T. "The United States Department of Agriculture." In *Food in Contemporary Society*, pp. 3–8. Federal Agencies Report. Proceedings of the Stokely-Van Camp Annual Symposium, College of Home Economics, University of Tennessee, Knoxville, 1979.

(*42*) Simopoulos, A. P. "National Institutes of Health." In *Food in Contemporary Society*, pp. 9–13. Federal Agencies Report. Proceedings of the Stokely-Van Camp Annual Symposium, College of Home Economics, University of Tennessee, Knoxville, 1979.

(*43*) Grumbly, T. "The Politics of Ripeness: Indecision and Human Nutrition." Paper presented at the National Institutes of Health, STEP Conference, Bethesda, Md., April 1979.

(*44*) Halperin, S. "The Department of Education: Last But Not Least." *Change* 11: 35–37, November–December 1979.

(*45*) Comptroller General's Report to Congress. *Federal Domestic Food Assistance Programs: A Time for Assessment and Change*. U.S. General Accounting Office, Washington, D.C., 1978.

(*46*) U.S. Department of Agriculture and the U.S. Department of Health, Education, and Welfare. *Dietary Guidelines for Americans*. U.S. Department of Agriculture, Washington, D.C., 1980.

(*47*) Bureau of Community Health Services. *Guide for Developing Nutrition Services in Community*

Health Programs. U.S. Department of Health, Education, and Welfare, Public Health Service, Health Services Administration, Bureau of Community Health Services, Rockville, Md., DHEW Publication Number (HSA) 78-5103, 1977.

(*48*) Barnes, F. E. F., ed. *Ambulatory Maternal Health Care and Family Planning Services: Policies, Principles, Practices.* Committee on Maternal Health Care and Family Planning, Maternal and Child Health Section, American Public Health Association, Washington, D.C., 1979.

(*49*) Joint Council on Food and Agriculture. *Human Nutrition Programs Research, Extension and Higher Education Programs Supported by the U.S. Department of Agriculture* (Draft). Prepared for the Joint Council on Food and Agriculture, Washington, D.C., December 1979.

(*50*) Kaufman, M. "Analysis of Need for Public Health Nutritionists in Medically Underserved Areas and the Contribution of Expanded Recruitment in Meeting this Need for Use in National Health Service Corps Planning." University of North Carolina, 1979, unpublished.

(*51*) U.S. Department of Health, Education, and Welfare. *Facts of Life and Death,* pp. 22-23. Public Health Service, National Center for Health Statistics. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79-12222, 1978.

(*52*) Study Commission on Dietetics. "The Profession of Dietetics." American Dietetic Association, Chicago, 1972.

(*53*) Yoder, S. "An Overview of Manpower Issues in Disease Prevention." In *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention: Background Papers,* pp. 409-418. U.S. Department of Health, Education, and Welfare, Public Health Service, Office of the Assistant Secretary for Health and Surgeon General. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79-55071A, 1979.

(*54*) Congressional Research Service. *Role of the Federal Government in Human Nutrition Research.* Senate Committee on Nutrition and Human Needs, Washington, D.C., March 1976.

(*55*) Comptroller General's Report to Congress. *Federal Human Nutrition Research Needs a Coordinated Approach to Advance Nutrition Knowledge,* Vol. 1. U.S. General Accounting Office, Washington, D.C., 1978.

(*56*) Office of Science and Technology Policy. *New Directions in Human Nutrition Research.* Executive Office of the President, Office of Science and Technology Policy, Washington, D.C., 1978.

(*57*) National Research Council. *Personnel Needs and Training for Biomedical and Behavioral Research.* 1977 Report, Vol.'s I and II. National Research Council, National Academy of Sciences, Washington, D.C., 1978.

(*58*) Biomedical Research Panel. Report of the President's Biomedical Research Panel. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (05) 76-501, 1976.

(*59*) National Extension Committee on Organization and Policy. *The Cooperative Extension Service in Transition.* University of Wisconsin-Extension, Madison, Wis., August 1979.

(*60*) Extension Service, U.S. Department of Agriculture. *Extension Impacts: A Task Force Report: The Impact of Extension Programs Relating to 9 Major Economic and Social Issues, 1971-75.* Extension Service, U.S. Department of Agriculture, Washington, D.C., May 1977.

(*61*) Boone, E. J. and E. E. West. *The Effect of Extension Service's Youth Nutrition Lesson Series on Behavioral Change in EFNEP Youth Utilizing Different Educational Environments and Teachers.* North Carolina Agricultural Extension Service, North Carolina State University, Raleigh, January 1976.

(*62*) Extension Service Revised Policy Guidelines and Suggestions for Conducting the Extension Expanded Food and Nutrition Education Program. Extension Service, U.S. Department of Agriculture, Washington, D.C., HE 100 (8176), 1976.

(*63*) *Expanded Food and Nutrition Education Program: Historical and Statistical Profile.* Program Aid 1230, Science and Education Administration, U.S. Department of Agriculture, Washington, D.C., 1979.

(*64*) DeMarco, S. Unpublished manuscript on visits to various cooperative extension service programs throughout the country (obtained from Senate Committee on Agriculture), November 1979.

(*65*) Harries-Belck, N. Extract from the National Home Economics/Nutrition Evaluation Team Executive Summary submitted to the U.S. Department of Agriculture October 1979 and presented at the 1979 National Workshop on Expanded Food and Nutrition Education, Denver, Colo., November 1979, unpublished.

(*66*) Andrews, M. "Assessing Social and Economic Consequences of Home Economics Program Efforts." Michigan State University, 1979, unpublished.

(*67*) National Research Council. *Personnel Needs and Training for Biomedical and Behavioral Research.* 1978 Report. National Advisory Council, National Academy of Sciences, Washington, D.C., 1978.

(*68*) Institute of Medicine, Division of Health Manpower and Resources Development. A Manpower

Policy for Primary Care. National Academy of Sciences, Washington, D.C., 1976.
(69) Schorr, L. B. "Building Preventive Health Services into the Health System." Paper presented at the Conference on Health Promotion and Disease Prevention, National Academy of Sciences, Washington, D.C., February 16–18, 1978.
(70) Institute of Medicine, Division of Health Promotion and Disease Prevention. "Themes and Policy Suggestions." *Conference on Health Promotion and Disease Prevention*, Vol. I. National Academy of Sciences, Washington, D.C., 1978.
(71) Office of Technology Assessment. *Selected Topics in Federal Health Statistics*. Washington, D.C.: U.S. Government Printing Office, GPO Stock No. 052–003–00683–9, 1979.
(72) Zigler, E. "The Unmet Needs of America's Children." *Children Today*, pp. 39–42, May–June, 1976.
(73) Bronfenbrenner, U. "The Origins of Alienation." In *Influences on Human Development*. U. Bronfenbrenner and M. Mahoney, eds. Hinsdale, Ill.: Dryden Press, 1975.
(74) National Academy of Sciences. *Toward a National Policy for Children and Families*. Washington, D.C.: U.S. Government Printing Office, 1976.
(75) Kammerman, S. and A. Kahn. *Family Policy in Five Nations*. New York: Columbia University Press, 1979.
(76) Yoder, S. G. "Reimbursement Policies for Primary Care." Report of a Health Policy Forum, St. Louis, Mo., May 24, 1978. National Academy of Sciences, Institute of Medicine, Washington, D.C., October 1978.
(77) Richmond, F. W. "The Role of the Federal Government in Nutrition Education." *Journal of Nutrition Education* 9: 150, 1977.

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NUTRITIONAL PROGRAM OPTIONS FOR MATERNAL AND CHILD HEALTH: A SUMMARY

by
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INTRODUCTION

Nutrition is one of the major influences on child health and development. Major nutritional inadequacies that affect maternal and child health exist in the United States and particularly in certain populations of specific age, sex, and racial characteristics. Iron deficiencies, poor growth, underweight, obesity, and inadequate vitamin A and C intakes and serum levels exist. Recent research suggests that diet in early life affects the course and rate of development of chronic degenerative disease in later life. Poor growth is more of a problem among preschoolers than obesity. Iron deficiencies exist especially among children 1–3 years of age. Below standard dietary intakes of preschoolers are reported for vitamins A and C and for calcium. Retarded growth, obesity (10–25 percent prevalence), excessive dental caries, iron deficiency, and a relatively high prevalence of children with excessive serum cholesterol are nutritional problems observed among the school-age population. A high proportion of the births of low-birth-weight infants as well as inadequate dietary intakes of calories, calcium, and iron are related to the nutritional problems of pregnant women.

The Federal Government sponsors several programs to address the nutritional needs of women and children. The Department of Agriculture (USDA) has three major programs: the Special Supplemental Food Program for Women, Infants, and Children (WIC), the National School

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Lunch and School Breakfast programs, and the Food Stamp program. The Department of Health and Human Services (DHHS) supports nutrition programs for children and pregnant women through Title V of the Social Security Act, through Title XIX Medicaid and through Head Start.

It is anticipated that health promotion and disease prevention will be emphasized in the 1980's (*1, 2*). The 1980's may also witness the emergence of a national food and nutrition policy. The United States Dietary Goals, as developed by the Select Committee on Nutrition and Human Needs, and the Dietary Guidelines, as developed by USDA and DHHS, reflect an increasing awareness of the role of nutrition in health promotion and disease prevention and may represent an initial step toward such a policy (*3*).

In the 1960's and 1970's, awareness of the impact of undernutrition increased greatly and was followed by the rapid growth of major USDA food programs such as the Food Stamp program and the school feeding programs. Additionally, USDA began to focus attention more on nutritional needs rather than on issues of food surplus that underlay earlier programs.

HEALTH AND NUTRITION

Understanding the effects of nutrition on health is important for determining both the allocation of resources and the choice of programs to meet the current nutritional needs of specific groups within the larger society. The full range of nutritional problems—undernutrition, imbalances in diet, and overconsumption—may occur in the same population group. Because of the multiplicity of problems in a diverse society, it is often difficult to make program decisions in response to emerging problems (i.e., obesity) without harming other participants. For example, if the Food Stamp program or the school food programs were adjusted for lower fat, sodium, and caloric intake, some undernourished persons might be adversely affected.

The methodologies available for measuring dietary requirements, food intake, and malnutrition are problematic. Surveys of nutritional status and dietary intake on a national basis are limited. National surveys such as the Health and Nutrition Examination Survey (HANES) and the National Food Consumption surveys report dietary intakes as related to Recommended Dietary Allowances (RDA). However, the Food and Nutrition Board of the National Academy of Sciences, which publishes the Recommended Dietary Allowances, has clearly stated that consumption below the RDA does not necessarily mean that dietary inadequacy or individual dietary deficiency exists. Additionally, these surveys identify the number of "individual-days below standard" rather than the numbers of individuals. Thus, even where national data are available, critical questions exist regarding their interpretation. Substantial controversy also exists among investigators over what constitutes nutritional risk, partially because of the minimal research on the functional effects of malnutrition (e.g., effects of low or deficient hemoglobin levels in child performance).

In spite of these limitations, however, available data give some indication of the nature and extent of malnutrition.

Nutritional Needs of Women of Childbearing Age

Rationale for Prenatal Intervention

The association between maternal nutrition and pregnancy outcome (e.g., neonatal and postnatal infant mortality and birth weight) is documented in numerous studies (*4–8*). Increased fetal and neonatal mortality and reduced birth weights were observed during famines in World War II in Leningrad and Holland (*9, 10*). In more recent studies conducted among low-income Canadian (*11*) and rural Guatemalen mothers (*12, 13*), the role of nutritional supplements in improving birth weight is documented. Conflicting evidence of the relationship between specific elements of maternal diet or nutritional status and pregnancy outcome has been reported (*12, 14*). Baird (*15*) showed that maternal weight and height at conception may have more influence on infants' birth weights than increased calorie intakes during pregnancy. Naeye (*16*) showed that pregnancy outcome relates to maternal weight gain, which is conditional upon prepregnancy nutritional status.

Methodological differences (*17*) including differences in the degree and duration of maternal malnutrition (*12, 18*) may explain these differences. Studies in Britain have also suggested that the lifetime nutritional experience of the mother, other health factors, the quality of obstetrical care, other aspects of medical care, sanitation, and a host of other variables contribute to outcomes of pregnancy (*15, 19*). Associations between low birth weight and low socioeconomic status have been well documented (*19–22*). In Britain, racial differences in birth weight persisted even after adjustments for socioeconomic status. A number of studies link the influence of dietary counseling for maternal diet to improved outcomes of pregnancy (*11, 23, 24*).

The consequences of undernutrition on the outcome of an adolescent pregnancy can be particularly severe, affecting not only fetal growth and development but the mother's growth as well. A majority of adolescent females do not achieve their ultimate height until the age of 17, although the average age of menarche in the United States is 12.5–13 years. Among teenagers in general, and especially teenage girls, a significant proportion consume diets inadequate for their own growth (see table 1). The additional burdens of pregnancy further complicate this problem. Inadequate dietary intake among pregnant adolescents, along with a host of other biological and socioeconomic factors, contributes to increased incidences of low-birth-weight infants, infant mortality, and complications of pregnancy (*25*).

The edema, proteinuria, and hypertension syndrome, an additional dimension of pregnancy outcome, is also believed to be influenced by nutrition, although the etiology and treatment for this condition remains in dispute.

TABLE 1. Median Intakes as a Percentage of Recommended Dietary Allowances (RDA's), 1979 Revision[1]

Nutrients	Income Less Than Poverty Threshold				Income Greater Than Poverty Threshold			
	White		Black		White		Black	
	Male	Female	Male	Female	Male	Female	Male	Female
	Percentage of RDA's among those 12–14 years of age							
Calories	74	72	75	71	89	79	83	73
Calcium	100	78	62	64	108	84	74	59
Iron	61	49	63	52	69	54	62	55
Vitamin A	63	63	53	64	71	69	43	43
Vitamin C	92	69	–	75	128	102	148	95
Niacin	85	84	80	82	94	90	87	93
	15–17 years of age							
Calories	78	75	78	77	96	78	99	76
Calcium	100	49	69	46	109	63	68	51
Iron	60	40	66	43	89	48	73	60
Vitamin A	60	54	63	48	81	59	42	51
Vitamin C	77	82	67	83	105	84	65	84
Niacin	71	72	95	67	112	83	91	100

[1]Indicates that 50 percent of white males 12–14 years of age consumed less than 74 percent of the RDA.

SOURCE: Values calculated from HANES Dietary Intake Findings (National Center for Health Statistics: VHS Series II, No. 202).

Table 2 reviews many of the major studies linking nutrition, as well as other factors, to improved pregnancy outcome.

Maternal Dietary and Nutritional Status

Although a number of studies have been conducted on the dietary intakes of women, the results of these studies must be interpreted and compared with caution.

The HANES study is the only nutritional survey to date conducted on a representative nationwide sample of the U.S. population. Although special subgroups of the population have been sampled, including pregnant and lactating women, data on these subgroups have not yet been published. Major findings of HANES I with regard to adult women in general are summarized in table 3.

Fifty percent of women ages 18–24 years had iron intakes below 50 percent of the 1974 RDA; approximately 93 percent of all females had iron intakes below 100 percent of the RDA. Over 50 percent of adult women consumed below the RDA for calcium, and the proportion decreased with increasing age. Approximately 50 percent of women 18–24 had vitamin A intakes below two-thirds of the RDA. A smaller percent of older women (25–34 years) were below two-thirds of the RDA for vitamin A intake. Only vitamin C and protein intakes appeared to meet the standard for a majority of the sample.

TABLE 2. Factors Affecting Infant and Perinatal Mortality and Birth Weight and Studies Documenting Relationships

Factors	Key Studies	Results
Prenatal and other medical care	Shapiro, Schlesinger, Nesbitt (*6*) Terris & Gold (*26*) Kessner *et al.* (*27*)	Earlier prenatal care associated with more favorable outcomes of pregnancy
Food supplementation, nutrition counseling, prenatal diet	Ebbs *et al.* (*23*) Burke *et al.* (*28*) Cameron & Graham (*29*) Tompkins *et al.* (*24*) Bergner & Susser (*30*) Habicht *et al.* (*12*) Higgins (*11*) Lechtig *et al.* (*13*)	Food supplementation, dietary instruction, and improvements in dietary habits associated with improvements in birth weight and lower perinatal infant mortality, although magnitude of improvements varies considerably with individual studies
	Berry & Wiehl (*31*) Mason & Rivers (*32*) Hunt *et al.* (*33*) Kafatos & Zee (*34*) Kaminetzky *et al.* (*35*)	Maternal hemoglobin levels, other nutrition parameters increase with improved diet during pregnancy
Socioeconomic factors-status Income, education, occupation, and race	Stockwell (*21*) Baird (*15*) Butler & Elberman (*19*) Weiner (*22*) Lewis (*20*)	Low birth weight and infant mortality show inverse relationship with income and educational levels and occupational status; nonwhites have higher infant mortality
Individual factors Age and birth order	Baumgardner (*36*) Baird (*15*) Heady & Daly (*37*) Butler & Elberman (*19*) Alberman (*38*) Kaltreider & Johnson (*39*)	Primigravidas and grand multiparas have highest risks of low birth weight and perinatal mortality; parities 2–3 have lowest risks; teenagers and mothers over age 35 have greatest risks of unfavorable pregnancy outcomes
Individual factors Smoking, alcohol, and drug use	Terris & Gold (*26*) Davies *et al.* (*40*) Little (*41*) Meyer *et al.* (*42*) Whiting *et al.* (*43*) Fielding & Yankauer (*44*)	Smoking and alcohol intake during pregnancy have direct relationship with low birth weight and prenatal mortality; even for moderate tobacco use and alcohol intake, lower birth weights reported
Maternal weight, height, and weight gain during pregnancy	Antonov (*9*) Smith (*10*) Habicht *et al.* (*12*) Naeye *et al.* (*5*) Lechtig *et al.* (*13*) Naeye (*16*)	Maternal weight and height and prenatal weight gain have direct relation to infant birth weight; Naeye shows optional weight gain in pregnancy depends on maternal body build

TABLE 3. Median Percentage of 1974 Recommended Daily Allowance for Selected Nutrients for Adult Women by Age

Age Group	Calories	Protein	Calcium	Iron	Vitamin A	Vitamin C
			Percentage			
18–19	76	135	50	49	66	137
20–24	75	165	71	49	62	106
25–34	100	165	85	66	75	124

SOURCE: National Center for Health Statistics: *Dietary Intake Findings, United States, 1971–1974. Vital and Health Statistics.* Series 11, No. 202. DHEW Pub. No. (HRA) 77–1647. Health Resources Administration. Washington. U.S. Government Printing Office, 1977.

The HANES I data also indicate the following:

(1) Protein, calcium, vitamin A, and vitamin C intakes below the standard were reported by a higher proportion of low-income families than by upper income groups.
(2) Caloric intakes of low-income white females were lower than those of their upper income counterparts, but the reverse was true for lower income black females.
(3) Although a high percentage of women were reported to have below standard caloric intakes, the high prevalence of obesity points to the need to consider energy expenditure in evaluating caloric intakes.

Analyses of the HANES data for pregnant and lactating women are not yet available. However, as information in table 4 suggests, studies on small groups of pregnant women have identified nutritional deficiencies and indicate that such deficiencies during pregnancy are not limited to women of lower socioeconomic status. A significant proportion of pregnant women appear to have caloric intakes below the recommended levels. Although protein intakes appear to be adequate, caloric intakes may not be sufficient to keep protein from being used as a source of energy. Calcium and iron appear to be uniformly below standard in the diets of pregnant women, and vitamin A intakes are marginal. Vitamin C intakes are variable; more recent studies show intakes above the recommended levels. This change may be due to improved diets or the lowering of the recommended levels of vitamin C in 1974.

Pregnant adolescents are considered to be at special nutritional risk because of the increased demands of both pregnancy and their own growth. Studies on small groups of pregnant teenagers (table 4) have revealed nutritional deficiencies similar to those of pregnant adult women. Inadequacies seem to exist more frequently and more severely in calories, calcium, iron, and vitamin A. Although the intakes of certain nutrients by pregnant teenagers may equal or exceed the intakes of older pregnant women, the greater nutritional requirements of teenagers often make them more vulnerable to nutritional deficiencies, especially for calcium, iron, and vitamin A.

With the exception of obesity, overt clinical signs of malnutrition are rare for women of childbearing age in the United States. The extremely low iron intakes of pregnant women seem to correspond to lower than

normal hemoglobin and hematocrit values. However, the extent to which depressed hemoglobin and hematocrit values are a normal physiological consequence of pregnancy is not clear. A review of a number of studies on the iron status of pregnant women showed a significant proportion of women with anemia on the basis of blood hemoglobin or hematocrit levels, which is a reflection of inadequate iron intakes in the past (*54*).

Nutritional Needs of Infants

Rationale for Infant Nutrition Intervention

Breast Feeding

Breast feeding has important effects on infant and family well-being, suggesting the need to promote this practice. Beneficial aspects of breast feeding include immunological protection of the infant (*55–57*), the stimulation of a desirable emotional bond between mother and child (*58–61*), and the supply of essential nutrients to the infant in an easily digested and assimilated form. In addition, many investigators believe that bottle feeding increases the probability that an infant will become an obese child, an obese adult, or both (*62, 63*). Formula-fed infants appear to be more likely to become obese, but the reasons for this are unclear (*63, 64*).

Relationship of Infant Diet to Intellectual Development

The critical period of brain growth in humans is from conception to the end of the second year (*65*). Although it is generally agreed that nutrition plays an important role in brain development (*66–68*), controversy remains regarding the precise relationship of nutrition to intellectual development (*69, 70*). There is evidence that unless special efforts are made to provide intellectual as well as nutritional catchup for previously malnourished infants and children, they will lag behind their better nourished peers in some aspects of intellectual performance (*71–73*).

Infant Diet and Obesity

Obesity is a major nutritional problem among Americans that occurs in infancy and has been noted by various local and regional studies and the Ten State Nutrition Survey (TSNS). Infant obesity has been linked to an increased risk of childhood obesity (*74*) and adult obesity (*75*). More recent evidence, however, has obscured the link between infant obesity and childhood obesity (*76–78*), and more research is needed to clarify this issue.

Infant Diet and Coronary Heart Disease

Lifelong eating habits have been implicated in the etiology of coronary heart disease. The ratio of high saturated fats to unsaturated fats in diets rich in cholesterol has been linked to atherosclerotic lesions typical of

TABLE 4. Studies on Nutrient Intakes of Pregnant Women

Study	Sample	Age in Years	Calories	Protein
	Adults and Adolescents			
Snowman (*45*)	N = 68 low-income 64% black	13–28	57% < 75% RDA	33% < 75% RDA
Blackburn (*46*)	N = 26 middle income	21–33	$\bar{x}$ < RDA	$\bar{x}$ > RDA
Thompson (*47*)	N = 56 all incomes	15–17 18–24 25–32	– – –	– – –
Harrill (*48*)	N = 35 private patients	19–35	$\bar{x}$≅80% RDA	$\bar{x}$≅120% RDA
Stevens (*49*)	N = 129 13–43 medically indigent primarily white	$\bar{x}$ > RDA	$\bar{x}$ > RDA except 4 > yr)	$\bar{x}$ < RDA
	Adolescents Only			
Singleton (*50*)	N = 51 low-income 67% black	14–18	–	$\bar{x}$ > 2/3 RDA
King (*51*)	N = 18 low-income 67% nonwhite	14–18	59% < 2/3 RDA	0% < 2/3 RDA
Osofsky (*52*)	N = 88 low-income 60% nonwhite	11–18 18% < 1/2 RDA	81% < 80% RDA 7% < 1/2 RDA	22% < 80% RDA 33% < 1/2 RDA
McGanity (*53*)	N = 550 low-income 71% black	13–19 $\bar{x}$ = 95% RDA	– $\bar{x}$ = 93% RDA	$\bar{x}$ > RDA $\bar{x}$ = 60% RDA

KEY: N = number, $\bar{x}$ = average.

Calcium	Iron	Vitamin A	Vitamin C
67% < 75% RDA	90% < 75% RDA	43% < 75% RDA	28% < 75% RDA
–	–	–	–
36% < 2/3 RDA 4% < 2/3 RDA 26% < 2/3 RDA $\bar{x} \cong 80\%$ RDA	43% < 2/3 RDA 22% < 2/3 RDA 47% < 2/3 RDA $\bar{x} \cong 60\%$ RDA	14% < 2/3 RDA 4% < 2/3 RDA 5% < 2/3 RDA $\bar{x} \cong 100\%$ RDA	0% < 2/3 RDA 0% < 2/3 RDA 0% < 2/3 RDA $\bar{x} \cong 150\%$ RDA
$\bar{x}$ < RDA	–	$\bar{x}$ < RDA	
$\bar{x}$ < 2/3 RDA	$\bar{x}$ < 2/3 RDA	$\bar{x}$ < 2/3 RDA	$\bar{x}$ < 2/3 RDA
88% < 2/3 RDA	71% < 2/3 RDA	65% < 2/3 RDA	18% < 2/3 RDA
76% < 80% RDA 56% < 1/2 RDA	92% < 80% RDA 48% < 1/2 RDA	81% < 80% RDA 20% < 1/2 RDA	38% < 80% RDA
$\bar{x}$ < RDA $\bar{x}$ = 65% RDA	$\bar{x}$ < RDA $\bar{x}$ = 85% RDA	$\bar{x}$ < RDA $\bar{x}$ > 90% RDA	$\bar{x}$ > RDA

coronary heart disease. Some would argue that moderate infant cholesterol consumption is developmentally necessary because cholesterol metabolism may be stimulated to maturity through this mechanism (*79–81*). Breast milk provides a much greater proportion of cholesterol (20 mg/100 ml) than the three most widely used formulas (1.5–2.2 mg/100 ml) (*82*). The concern about the saturated fat intake level has led some physicians to recommend low-fat milks for infants as a preventive measure. Fomon (*83*) cautions that 2 percent fat milk only should be fed to children over the age of 1 year. Studies of serum lipids and lipoproteins of breast-fed and bottle-fed infants have reported no significant differences (*84*).

Health Consequences of Iron Deficiency

Iron deficiency not only affects the oxygen-carrying capacity of the blood (anemia), but non-anemia-related iron deficiency is associated with problems related to growth, skin and mucous membranes, gastrointestinal tract, muscle function, and behavior (*85*). Weight gains appear to be particularly adversely affected by iron deficiency.

The Nutritional Status of Infants

Despite the fact that infants (children through 11 months old) are among the most nutritionally vulnerable of all age groups, only limited work has been done to examine the nutritional status of American infants. The first Health and Nutrition Examination Survey (HANES I), the only survey to date that collected nutritional status data on a representative sample of Americans, did not include children under the age of 1 year. HANES II will include children 6 months of age and older. Regional (the north central States) (*86*) and local studies (e.g., New York City child health stations) (*87*) have been representative of their study populations, which have included large numbers of infants. The TSNS, which examined 855 infants, did not survey infants within the entire United States, nor did it survey a representative sample of low-income populations, which were consciously oversampled. However, the TSNS attempted to examine a diversity of Americans and included various ethnic, racial, regional, and income groups. The following information on infant nutritional status is a report of findings from the TSNS.

Low-birth-weight infants continue to be found in high proportion among some populations (low-income and black Americans). These children have special nutritional needs and are highly susceptible to infections and other health risks. Declines in breast-feeding practice and duration among Americans have been reported (*88, 89*). Potential nutritional and health-related problems resulting from this decline have been studied extensively in recent years. Available preliminary data suggest an upward trend both in breast-feeding practice and duration, at least among middle-class women (*90, 91*). Information from the TSNS indicates that infants were relatively well nourished in comparison to

other groups in the survey.[2] The most striking nutritional problem uncovered was the deficiency of iron intakes. Poor growth and underweight occurred more frequently than expected. Other problems identified in a smaller proportion of infants were obesity, low vitamin A and C intakes and low serum vitamin A and C levels, and to a much smaller extent, low dietary calcium and dietary riboflavin intakes (and low urinary riboflavin levels). See table 5 for a summary of the TSNS findings.

Nutritional Needs of Preschoolers

Rationale

Preschoolers have been considered to be a nutritionally vulnerable group. Although preschoolers are growing at less rapid rates than infants and thus have a relatively smaller nutrient requirement, their growth rates and nutrient needs are relatively greater than those of older children. Often, changes in preschoolers related to physiological and behavioral development can affect their nutritional status. They show decreased appetite and exhibit an increasing independence; they feed themselves, often refusing to eat anything other than a limited selection of foods (*94*), and are unable to sit still long enough to eat a proper meal. Eppright *et al.* (*86*) reported that preschoolers who ate more frequently than their peers were more likely to have adequate nutrient intakes.

"Nursing bottle syndrome" is most prevalent among preschoolers 3–4 years of age (*95*). Typically, these children are given a bottle during the day, at bedtime, or both, and they suckle the bottle for long periods of time, leading to increased rates of dental caries. An estimated 25 percent of children 2 years old and 40–60 percent of those 3–4 years old have dental caries (*83, 95*).

The effect of nutritional status on intellectual development of preschool children is also a concern. The period of rapid brain growth in the human extends through the 15th and perhaps as late as the 24th month of life (*65, 66, 70*). Malnutrition in the early preschool period may have an important effect on brain development. Further, the preschool years are the period in which the child gains critical prelearning skills and knowledge leading to better performance in school. The apathetic, listless, irritable child suffering from anemia, undernutrition, or both is less able to take advantage of this preschool learning period.

Although the preschool child is less vulnerable than the infant to some nutritional problems, the preschool child is particularly vulnerable to others. Poor eating habits developed during the preschool years may have long-term consequences such as obesity, dental caries, and some chronic diseases. Preschoolers are thus a prime target for nutritional care.

[2]Further information on the survey format and the findings is available in the four-volume series *Ten State Nutrition Survey, 1968–1970* (*92*).

TABLE 5. Nutritional Problems of Infants in the United States in the Ten State Nutrition Survey (TSNS)

Nutritional Problem	Magnitude of Problem	Identified High-Risk Population	Comments
Underweight	30–50% of sample below 15th percentile for weight	Infants from low-income ratio States	Stuart-Meredith standards used
Undersized	32–60% of sample below 15th percentile for height	Infants from low-income ratio States	Stuart-Meredith standards used
Obese	10% of infants	Appears to be somewhat equally distributed between blacks and whites; also no income relationship apparent	Based on percentage of TSNS infants exceeding 95th percentile of triceps skinfold for the group
Inadequate dietary iron intake	Mean intakes below standard with approximately 74% of sample with below standard intake	All infants but especially older nonwhites from low-income ratio States	
Deficient or low hemoglobin values	15% of white and Spanish-American children <2 yr of age (and 30% of black children <2 yr of age)	Children from low-income ratio States	Current evidence (*93*) supports lower normal hemoglobin values for blacks; new standards needed for reevaluation of these data; available breakdowns include children 12–24 months of age
Inadequate dietary vitamin C	Mean intake exceeded standard but approximately 48% of sample with below standard intakes	Infants from low-income ratio States	TSNS used a standard of 30 mg/day; 1974 RDA standard is 35 mg/day; using 1974 standards these findings underestimate deficient and low vitamin C intakes
Deficient or low serum vitamin C values	13% of black children <2 yr of age from low-income ratio States	Black children from low-income ratio States	Four Spanish-Americans 2 yr of age were examined for serum C

			values—because of their small number, these findings are not reported here; available breakdowns include children 12–24 months of age
Inadequate dietary vitamin A intake	Mean intakes exceeded standard but approximately 15% of sample with below standard intake	Older infants from low-income States	
Deficient or low plasma vitamin A values	22% of children <2 yr of age from low-income ratio States; 8% of whites <2 yr of age from high-income ratio States (low values)	Children from low-income ratio States	Available breakdowns include children 12–24 months of age
Inadequate dietary calcium intake	Mean intakes more than twice standard but approximately 6% of sample below 400 mg/day intake	Older infants from low-income States	TSNS used a calcium (Ca) standard of 550 mg/day; 1974 RDA intakes 360 mg Ca for infants 0–5 months and 540 mg Ca for infants 6–11 months. Using 1974 RDA's, younger infants with intakes below 400 mg/day but above 360 mg would be consuming adequate dietary Ca
Inadequate dietary riboflavin intakes	Mean intakes exceeded standard but 2.5–5% of older infants with below standard intakes	Older infants from low-income ratio States	TSNS used a riboflavin standard of 0.55 mg/1,000 calories; 1974 RDA's for riboflavin intakes are 0.6 mg/1,000 calories. By 1974 standards the findings here slightly underestimate the proportion of infants with below standard riboflavin intakes
Deficient or low urinary riboflavin levels	25% of children <4 yr of age	Black children from both high- and low-income ratio States and children generally from low-income States	Available breakdowns include children 12–48 months of age

Nutritional Status of U.S. Preschoolers

In the mid-1960's, evidence of the nutritional vulnerability of children ages 1–5 years was accumulated from data in developing countries. As a partial response to the need for more information on potentially at-risk preschoolers in the United States, Owen's Preschool Nutrition Survey[3] examined 3,400 children between the ages of 1 and 6 years and the TSNS examined 3,700 children from 1968 to 1970. The HANES I survey, which included 1,500 children, was the only survey to date that had a sample representative of U.S. preschoolers.

Available information indicates that U.S. preschoolers are in relatively good nutritional health except for a small subgroup. Poorer growth and nutrient intakes are associated with lower socioeconomic status. Clinical signs of malnutrition are found in a very small proportion of the population (ranging from 0.0 to 2.0 percent for most nutritional deficiency signs). Poor growth by height measurements is much more common than obesity in this group. Iron deficiency is striking among U.S. preschoolers; the deficiency is indicated by dietary intake information and by biochemical tests. Children 1–3 years of age were the most iron deficient. Below standard dietary intakes of vitamins A and C, as well as low serum vitamin A levels, are found for a sizable proportion of preschoolers. Black preschoolers have the highest prevalence of low serum vitamin A of all groups in HANES I. Calcium intakes are lower for black children than for white children, although below standard intakes are found in both groups. Poorest calcium intakes are noted in the 2–3 years age group. A small proportion of preschoolers (less than 3 percent) have below standard dietary intakes of thiamine and riboflavin. Dental caries incidence is higher among preschoolers than among infants but lower than that among older children. HANES I data have not been examined for trace mineral intakes. However, studies from Denver (*97, 98*) indicate that zinc deficiency may be a problem among preschoolers, especially low-income preschoolers.

Table 6 summarizes the nutrition findings for preschoolers from available HANES I data along with supplemental information from the TSNS.[4]

Nutritional Needs of School-Age Children in the United States

Rationale for Intervention

The relationship between dietary practices of children ages 6–17 years and suboptimal nutritional and health status has received considerable attention. Food consumption patterns developed during the school-age

[3]Although the Preschool Nutrition Survey sample was drawn to be representative of the U.S. preschool population, problems in participation resulted in a less than fully representative study group (*96*).

[4]About 40 percent of children ages 1–5 years in the Preschool Nutrition Survey took vitamin and mineral supplements, which were considered in dietary intake calculations. About 25 percent of the TSNS children under age 6 years took supplements, but these were not considered in dietary intakes.

years have been related to adult obesity and accelerated development of atherosclerosis and hypertension. Short-term behavioral aberrations have been linked to hunger (*99*) and inadequate intake of iron (*85, 100–102*). Iron deficiency anemia limits oxygen transport and energy metabolism and thus limits the ability to perform physical work and to recover from fatigue (*103*). Iron deficiency without anemia may result in reduced activity of nonheme iron-containing enzymes and thus limit muscular performance (*104*). A double-blind, before and after treatment, study in preschoolers showed that iron deficiency in the absence of anemia had adverse effects on attention span and memory, but the deficits were eliminated once iron status was returned to normal levels (*105*).

An association has been found between iron nutrition and infection (*106*). Prolonged recovery from infection may be a more accurate measure of the impact of iron deficiency than susceptibility to infection.

Hyperkinesis

The prevalence of hyperactivity among school-age children varies depending on diagnostic criteria and is reported to range between 5 and 20 percent (*107*). Contributing factors have included neurologic complications following prenatal or perinatal trauma, smoking during pregnancy, hereditary and congenital factors, environmental pollutants—particularly lead, artificial additives in foods, and exposure to fluorescent lights (*108*). The elimination of synthetic food colors and salicylates from diets has received much attention as a treatment to modify hyperactive behavior (*109, 110*). Although some evidence indicates that a relationship exists between behavior change and the ingestion of synthetic food colorings, this relationship has been found in only a small proportion of the children identified as hyperactive (*109–111*).

Long-Term Effects

Long-term effects of suboptimal nutrition during childhood are difficult to identify because few studies have followed populations from childhood into adulthood. During early childhood, the differences in health that exist between races and sexes do not provide much information with which to predict adult health outcomes. However, by adolescence, differences in body composition, serum lipid values, and blood pressure values begin to assume more predictive value both in correlations between adolescent health status and adult health status and in the propensity to develop particular chronic diseases according to race and sex (*112, 113*).

Obesity

Childhood obesity has been associated with adult obesity (*114*). The range of estimates of the probability of an obese child becoming an obese adult is wide (*115, 116*). In one 20-year study, it was reported that in a sample of 50 boys and 50 girls who were obese, 86 percent of the boys and 80 percent of the girls remained obese into adulthood (*117*).

TABLE 6. Nutritional Problems of U.S. Preschoolers

Nutritional Problem	Magnitude of Problem	Identified High-Risk Population	Data Source	Comments
Short stature	40% of sample below 15th percentile for height	Poverty-level preschoolers[1]	TSNS	Stuart-Meredith standards used; only representative of sample population
Underweight	32% of sample below 15th percentile for weight	Poverty-level preschoolers[1]	TSNS	Stuart-Meredith standards used; only representative of sample population
Obesity	7% of children ages 2–5 yr	Slightly more common among whites than blacks and females	TSNS	Obesity defined by triceps skinfold thickness exceeding 95th percentile; available breakdown excluded 1-year-olds; only representative of sample may not be significant problem since 5% of population is expected to be greater than 95%
Low caloric intakes	14% of white children; 23% of black children	Poverty-level preschoolers[1]	HANES I	Low intake defined as less than 1,000 kcals daily
Below standard dietary iron intakes	86.7% of preschoolers	Preschoolers[1] ages 1–3 yr	HANES I	Mean intakes were 31–40% below standard
Low hemoglobin levels	Below poverty: 4.9% whites, 8.3% blacks; above poverty: 1.2% whites, 7.7% blacks		HANES I	Biochemical iron deficiency more prevalent in preschoolers than in older age groups
Low transferrin saturation levels	Below poverty:[1] 8.3% whites, 22.1% blacks; above poverty: 13% whites, 15.6% blacks		HANES I	Black, poverty-level preschoolers had highest prevalence of low transferrin

				saturation of all HANES I groups; preschoolers as a group were higher than all groups except for age group 6–17 years
Below standard dietary vitamin A intakes	32.3% of preschoolers	Black, poverty-level preschoolers	HANES I	Mean intakes for both income levels were about 1.5 times the standard
Low serum vitamin A levels	Below poverty: 1.6% whites, 9.1% blacks; above poverty: 2.4% whites, 10.3% blacks	Black preschoolers[1]	HANES I	Black preschoolers had highest prevalence of low-serum vitamin A values of all groups in HANES I
Below standard dietary vitamin C intakes	44.2% of preschoolers	White, poverty-level preschoolers; black, poverty-level preschoolers	HANES I	Mean intakes for both income levels exceeded standard (serum vitamin C values have not been published to date)
Below standard dietary calcium intakes	33.3% of black children; 13% of white children	Black preschoolers	HANES I	Mean intakes for both income levels nearly twice the standard
Below standard dietary thiamine intake	2.7% of preschoolers	Slightly more prevalent among whites	HANES I	
Below standard dietary riboflavin intake	2.4% of preschoolers	Slightly more prevalent among blacks	HANES I	
Dental caries	Average number of decayed, nonfunctional-carious, and filled teeth: 1.0±0.6	Slightly higher for blacks	HANES I	TSNS found average number of decayed and filled primary teeth was 1.8
	16.6% (±1.05) with specific dental treatment needs		HANES I	Includes teeth scaling, gum treatment, decay treatment (16.1%); data only broken down by sex; males insignificantly higher

[1]Different standards for poverty were used in each of these surveys.

The predominant long-term risks of adult obesity are the increased incidence of hypertension, stroke, and diabetes. Obesity is apparently related to depressed levels of high-density lipoprotein cholesterol, a variable that has significant negative correlation to the probability of coronary heart disease.

Hypertension

Although the etiology of childhood hypertension may not be clearly understood, it is important to detect the condition, provide followup, and intervene if it continues. Several studies have attempted to identify children at high risk for hypertension as adults (*118–120*). Although hypertensive levels in a small proportion of children may be predictive of adult hypertension, levels of correlation between childhood hypertension and adult hypertension are lower than blood pressure correlations found for adults at two points in time. However, if irreversible modifications occur in arterial walls after relatively short periods of hypertension (*121*), it is important to identify not only children with persistent elevations but also those prone to severe or frequent fluctuations.

The prevalence of hypertension in children varies with the definition of elevated levels. Age-related blood pressure distribution curves have been developed by the National Heart, Lung, and Blood Institute Task Force on Blood Pressure Control in Children (*122*). Children with hypertensive parents, black adolescents, and obese adolescents are more likely than other children to have persistent blood pressure elevations (*113, 123*). Reported prevalence of persistent hypertension in children ranges from 0.6 to 2.5 percent, but one-time measurements have identified prevalence rates as high as 13.4 percent (*120*). Obesity and sodium intake affect high blood pressure prevalence and severity (*124*).

Atherosclerosis

Several prospective studies have shown a relationship between elevated serum cholesterol (over 200 mg/dl) and increased risk of coronary artery disease (*125*). Results of autopsy studies indicate that patients of all ages had intimal deposits and histologic alterations consisting of intracellular and extracellular lipid deposits. The amount of surface area affected increased slowly from ages 6 to 10 years (*113*). After age 10, fatty streaks increased markedly in black teenagers followed by increases in white teenagers after approximately a 5-year lag. Fibrous plaques began to appear in the second decade of life. More plaque was found in whites than in blacks. Strong concluded that 15 years is required for the conversion of all fatty streaks to fibrous plaques. However, since the rate of conversion differed between blacks and whites, the initiation of the fatty streak process must differ from the process that produces clinical manifestations. Basic morphological features of the coronary arteries influence subsequent development of atherosclerosis. Risk factors influence the severity of the disease and the pattern and onset of clinical features.

Several epidemiologic studies have suggested that the relative amounts of low-density lipoproteins (LDL) cholesterol and high-density lipopro-

teins (HDL) cholesterol are better predictors of the incidence of coronary heart disease than total cholesterol, elevated levels of HDL being associated with lower disease incidence (*126*, *127*). The HDL cholesterol has been shown to vary with body weight, weight change, smoking, and exercise. Child HDL levels have been measured in the Bogalusa heart study population (*84*), the Princeton family lipid program (*128*), and the Lipid Research Clinics prevalence study (*129*). Little variation in the risk parameters has been observed among preschool-age children. By adolescence, ethnic and sex differences become apparent. In the Princeton study, hypercholesterolemic (greater than 205 mg/dl) white children were much more likely to have elevations of LDL cholesterol in contrast to hypercholesterolemic black children, who were more apt to have elevated HDL levels. In this population, approximately 29 percent of the hypercholesterolemic children did not have elevated LDL cholesterol values.

Nutritional Status of U.S. School-Age Children

Nutritional needs of school-age children (6–17 years of age) have been of special concern not only because of the influence of nutrition on growth and development but also because of its influence on school performance. For these age groups, suboptimal nutritional status may result in decreased attention span, irritability, inability to sustain physical activity, and inadequate growth rates. Relatively long-range outcomes such as adult obesity, the acceleration of the development of chronic disease states, or both may also occur.

Unless otherwise indicated, the following summary of nutritional and dietary status has been prepared from HANES I data. Clinical signs of deficiencies of niacin, vitamin A, vitamin C, iodine, and calcium were found; adolescents were more likely to be affected than younger children. Some evidence of past rickets was found (see table 7). Dietary intake data show that calories are likely to be below standard for those 6–11 years old. (Table 1 summarizes median nutrient intakes as a percentage of RDA.) Height retardation was found in 20–30 percent of all children ages 6–10 years. This occurrence is indicative of longstanding undernutrition. The highest prevalence of obesity was found among white adolescent males. (Table 8 presents percentages of obese individuals in this age group from the Ten State Nutrition Survey.) It is of interest in the TSNS that with increasing income both black and white children were taller and heavier and more advanced in skeletal maturity and dental development (*130*). The problem of undernutrition and overnutrition existed, however, in all income strata. Iron deficiency was noted in 5–25 percent of this population. (Table 1 summarizes iron status information.) Dental problems (dental caries and gingivitis) were found to increase with increasing age. At least two-thirds of the HANES population who were 6–17 years of age required some type of dental treatment (*131*). The average number of decayed, missing, filled teeth increased from 1.7 for ages 6–11 years to 6.2 for ages 12–17 years (*131*). Relatively few children 6–11 years old had gingivitis severe enough to require treatment (1.9 percent), but this figure

TABLE 7. Prevalence of Clinical Signs Indicative of Nutrient Deficit

Nutrient and Clinical Sign Indicative of Nutrient Deficit	6–11 Years				Total	12–17 Years				Total
	Inc > Pov[1]		Inc < Pov		6–11 Years	Inc > Pov		Inc < Pov		12–17 Years
	W	B	W	B		W	B	W	B	
	Percent									
Niacin										
Fungiform papillary hypertrophy of tongue	3.9	11.0	4.2	2.8	4.2	7.2	10.4	6.1	18.6	8.3
Vitamin A										
Follicular hyperkeratosis, arms	5.9	2.6	7.9	14.7	6.7	7.6	5.1	10.6	6.5	7.9
Vitamin C										
Diffuse marginal inflammation	4.5	1.0	3.6	7.8	4.3	9.0	19.2	29.1	27.8	12.3
Iodine										
Thyroid enlargement Sum: Groups I and II	6.1	5.4	1.0	6.3	4.4	6.3	12.0	3.0	6.7	6.0
Calcium										
Positive Chrosteks sign	4.5	6.4	5.6	7.6	4.8	12.5	12.4	14.8	18.9	12.7

[1]Income (Inc) above 100 percent of poverty (Pov) level for whites (W) and for blacks (B).

TABLE 8. Percentage of Obese Individuals, Ten State Nutrition Survey

Years of Age	Males		Females	
	White	Black	White	Black
12	18.3	9.8	10.0	9.0
13	18.8	12.5	15.3	18.6
14	29.0	13.0	11.7	11.1

SOURCE: U.S. Department of Health, Education, and Welfare: *Ten State Nutrition Survey 1968–70.* Vol. 1–4. DHEW Pub. No. (HSM) 72–8133. Health Services and Mental Health Administration. Center for Disease Control, Atlanta, Ga., 1972.

increased to 17.1 percent for males 12–17 years of age and 9.6 percent for females 12–17 years of age.

Table 9 shows the proportion of children in the 6–17 years age group with elevated total cholesterol levels (above 200 mg/dl). The breakdowns of cholesterol values into fractions of high-density lipoproteins and low-density lipoproteins, which some believe to be better predictors of the incidence of coronary heart disease than total cholesterol levels, were not available.

Summary of Maternal and Child Health Status

It is difficult to make definitive statements about the nutritional status of infants, preschoolers, school-age children, and women of childbearing age because of problems in data availability, measurement techniques, and data analysis. Nevertheless, available data allow the identification of potential problem areas.

Women of childbearing age have deficiencies of iron, calcium, and vitamin A. Pregnant women in all income strata appear to have deficient

TABLE 9. Proportion of Children Ages 6–17 Years With Total Cholesterol Levels Above 200 mg/dl

Years of Age	Males		Females	
	White	Black	White	Black
		Percent		
6	9.0	30.3	18.2	33.2
7	3.6	24.8	26.9	28.3
8	11.4	42.2	27.3	46.7
9	25.0	26.7	29.2	45.0
10	22.5	18.9	23.6	32.3
11	30.0	30.0	24.6	16.1
12	19.2	34.9	22.9	19.4
13	23.6	15.3	13.4	18.7
14	17.6	11.8	16.1	24.6
15	9.9	10.4	18.3	40.3
16	10.1	26.0	19.0	31.8
17	17.9	26.4	24.3	24.3

nutrient intakes of calories, calcium, iron, and, to some extent, vitamin A. Although protein intakes are generally adequate, insufficient caloric intakes are known to compromise protein intakes by allowing protein to be used for energy.

Infants in the United States are generally well-nourished with the exception of iron intake. Poor growth and underweight, obesity, and problems in vitamin A and C intakes and serum levels exist among a small subgroup of infants.

Preschoolers are also in relatively good nutritional health except for a small subgroup. Poor growth as indicated by height and weight measurements is more of a problem than obesity. Iron intake is a problem also for preschoolers and especially for those in the 1–3 years age group. Black children were noted to have greater vitamin A and calcium problems than whites, although low dietary intakes and serum levels (vitamin A) were also found in whites. Below standard vitamin C intakes were found for a sizable proportion of preschoolers.

School-age children 12–17 years of age are more likely than children 6–11 years of age to have substandard nutrient intakes and clinical signs of deficiencies. Clinical signs of nutrient deficiencies were found for niacin, vitamin A, vitamin C, iodine, and calcium. Children ages 6–11 years were more likely than older school-age children to have below standard caloric intakes. Height retardation, indicative of longstanding undernutrition, was found in 20–39 percent of children ages 6–10 years. Obesity was most common among white adolescent males but was found in other school-age children as well. Iron deficiency ranged from 5 to 25 percent in this group. Dental caries increased with age.

The rationale for nutrition intervention for these groups is based on the following premises:

(1) Nutrition is one of the major environmental influences in the establishment and achievement of child health potential.

(2) Nutrition can affect the course and rate of development of chronic degenerative disease.

The impact of adequate nutrition on postdelivery child growth and development is well known. Newer research indicates that intrauterine growth and development is linked significantly to nutrition. There are indications that nutrition can have profound influence on brain development, intellectual performance, and behavior.

A clear relationship exists between nutrition and dental disease, the most prevalent child health problem. Many adult diseases may have had their basis in inadequate childhood dietary practices, poor nutritional status, or both. Although the relationship of long-term dietary practices to the development of such killer diseases as hypertension and atherosclerosis needs further investigation, sufficient evidence is believed to exist to warrant the inclusion of dietary modifications felt to reduce the risks of these diseases in the Dietary Goals for the United States.[5]

[5]Several significant socioeconomic factors were not mentioned in this brief overview. This reflects the fact that analysis of socioeconomic determinants of nutritional status for the U.S. population has been limited to income (variably defined) and race. Newer analyses should provide information on the impact of such social phenomena as working mothers and single-parent families, as well as other economic and environmental factors on nutritional status.

U.S. GOVERNMENT NUTRITION PROGRAMS FOR MOTHERS AND CHILDREN

Issues relating to the development and implementation of the wide variety of Federal food and nutrition programs are complex, as are considerations of future policy options. The following discussion summarizes some of the more prominent issues. The full report of the Select Panel for the Promotion of Child Health (available from Nutrition Planning) (*132*) presents a much more complete analysis of each program.

U.S. Department of Agriculture Programs

The U.S. Department of Agriculture, particularly the Food and Nutrition Service, has three major programs that affect the nutritional status of mothers and children: the Special Supplemental Food Program for Women, Infants, and Children (WIC), the National School Lunch and School Breakfast programs, and the Food Stamp program.

The Supplemental Food Program for Women, Infants, and Children

The WIC program is a successor to smaller USDA programs that provided supplemental, nutritious food to low-income pregnant and lactating women, infants, and children who were at nutritional risk. (Earlier programs included the Commodity Supplemental Feeding program and the Pilot Food Certificate program.) The WIC was passed by Congress in September 1972 as a pilot program with an annual budget of $20 million and has grown, despite administrative and political impediments, to a $750 million per year program that reaches 1.3 million women, infants, and children.

The WIC program is unique among Federal food programs in that, although it is administered at the Federal level by USDA, at the local level it has close ties to Federal, State, and local health programs administered by DHHS. Local agencies operating WIC programs must see that health services are available to WIC participants. This linkage of WIC to prenatal and child health care services is one of the more controversial aspects of the program. In many areas where the required health services are not available, women, infants, and children may not be able to receive supplemental foods through WIC. In addition, some local WIC programs have expanded in size and scope so rapidly that they have exceeded the capacity of existing public maternal and child health services. Consequently, one option for expanding WIC services is to make maternal and child health services universally available. A second option is to permit WIC services to operate without the requirement for the availability of health care services. There is no clear research basis for making this decision.

The WIC program is also unique in having been more extensively evaluated than other food and nutrition programs. This is partly the result of the authorizing legislation that requires an evaluation of program benefits. Although the evaluations performed to date cannot be consid-

ered conclusive, they suggest that the WIC program has had a positive impact on the health status of its participants, including improvements in birth weights, infant and preschool child growth, and iron status. However, many aspects of WIC remain to be examined, such as whether the benefits are equitably distributed among those eligible to receive them, whether they are reaching the most needy, how well the program is administered in some States compared with others, what is the impact, if any, of nutrition education, and which local, State, and Federal policies enhance or hinder the operation of the program. There are also medical questions such as which component of WIC (food supplementation, nutrition education, or the linkage with maternal and child health services) has the most significant health impact or whether the components act synergistically. The ultimate goals of the program are also left open, and the question remains whether health benefits are maintained once individuals are no longer eligible for WIC.

The WIC participation has grown rapidly since its implementation in 1974 (the first year of operation) when 206,000 people participated. By the end of 1978, there were 1,318,000 participants. However, this is a small fraction of the 8.7 million women, infants, and children estimated to be eligible to participate in WIC based on income criteria. Many of those who are nutritionally in need cannot participate because of inadequate funding or because of Federal, State, or local policies that make it difficult and costly for low-income people to participate.

School Food Programs

The National School Lunch program is currently available in 75 percent of all schools throughout the United States and to approximately 90 percent of all school-age children. On any given day, approximately 50 percent of all eligible students participate. In general, participation rates within elementary schools are greater than those within secondary schools. Participation rates of children eligible for free or reduced price lunches exceed those of students paying the full price (85 vs. 46 percent in 1975).

The School Breakfast program is currently available in approximately 25 percent of all schools to about 30 percent of all children. Average daily participation of students in these schools is approximately 25 percent. Although 85 percent of all breakfasts are served at free or reduced price, little is known about how price and other factors affect participation in the breakfast program.

A number of Federal options are available to encourage more schools to adopt lunch or breakfast programs. Aid for equipment would probably have the most significant impact, and increasing the per meal reimbursement rate is another means of encouraging schools to participate. Commodity food processing contracts that would simplify the use of such foods is another means of making a meal program more feasible. Schools that have not adopted a lunch program by now, however, may not want such programs regardless of Federal reimbursements.

Many schools that provide a lunch program do not offer a breakfast program; therefore, different incentives may be necessary to increase breakfast programs. Several options are to require breakfast programs in

schools of "severe need," schools that participate in the School Lunch program, or all schools. Financial incentives, possibly including reimbursement for nonfood costs, could help schools pay labor and utility expenses. Services could also be provided to help school systems modify busing schedules to fit breakfast program schedules. At the local level, information on the benefits of a breakfast program and the numbers of children who would benefit could be used to elicit community support. Because so few schools now participate, expansion of the School Breakfast program may be one of the most cost-effective means both to alleviate poverty and to increase the amount of nutritious food available to children. Although such programs still must be carefully evaluated, it is likely that significant nutritional and learning benefits accrue to participants.

Another possible means of achieving added benefits from the school meal programs is to encourage higher participation rates within existing programs. A School Breakfast program price subsidy of 10 cents per breakfast would cost USDA about $54 million per year and probably add over 500,000 participants. Menu selection choice and food quality also affect participation rates. Nutrition and health education may affect the decision of a child to participate and also have an impact on food waste. Policies that regulate the availability of foods that compete with the standard school meal, such as a la carte foods or those in vending machines, may also influence participation rates. The relative cost and impact of each approach on participation rates remain to be determined.

If child health is to be maintained or improved by the school meal programs, health objectives must be specified in a more comprehensive manner. For planning purposes, a nutrient meal standard and a completive food classification that specify desirable ranges of nutrients such as thiamine, iron, vitamin A, or zinc and acceptable levels of fat, cholesterol, fiber, or sodium might be preferred to the type A pattern.[6]

An important and overriding policy issue related to both the School Lunch and Breakfast programs is the extent to which they are to be focused on poor or undernourished children rather than on all children. Arguments can be made for either emphasis. The original legislation for school food programs applied to all school children and did not focus on needy or poor children. While subsidizing only needy children appears to require fewer dollars, the benefits of a broader focus may be considerable. For those who need to participate, the stigma is almost certainly reduced in a more general program. Whether a change in emphasis would better serve the Nation depends on current national objectives and priorities.

The Food Stamp Program

The Food Stamp program, which benefits a large number of poor mothers and children, may be considered either a nutrition or an income supplement program. Little is known about the nutrition impact of this program, which provides a significant contribution to household food

[6]The type A lunch provides a child with one-third to one-half of 1 day's nutritive requirements following guidelines for inclusions of specific foods.

purchasers and overall economic welfare. It has been postulated that substituting cash for stamps would increase program participation but would most likely reduce its nutritional benefits. Additional restrictions on food purchases (e.g., through color coding for purchase of specified food types) might restrict program participation. An alternative approach would be to improve nutrition education for participants. However, much research is necessary to determine whether the USDA's Expanded Food and Nutrition Education Program and other nutrition education programs would be cost beneficial.

U.S. Department of Health and Human Services Programs

In DHHS, nutrition services are included among the various services that are considered health services. In 1935, the Social Security Act Title V maternal and child health funds established the first ongoing nutrition consultation services in many State health agencies. In the mid-1960's, DHHS guidelines defined nutritional care for pregnant women and children through the maternity and infant care project and the health services for children and youth project. However, nutrition services and other services are not specified in DHHS legislation and must compete with the array of other health services for increasingly tight dollars. Comprehensive nutritional care includes assessment, counseling, and education, referral to available food assistance programs in the community, and followup. Such care can be provided to childbearing women, infants, and children as a preventive or primary health care service and can be delivered through public health clinics, community health centers in rural or urban areas, or through other health care providers.

Services are provided directly to native Americans through clinics operated by Federal public health services or contract health care providers. The DHHS funding for maternal and child health and nutrition services is available through Title V Social Security Act formula grants-in-aid to State health agencies, through Medicaid-EPSDT third-party reimbursement, and directly from the Federal level to local grantees for primary care and Head Start.

Available information indicates that some exemplary programs provide quality nutritional care as a component of health care; however, funding and other constraints limit the availability, accessibility, and quality of maternal and child health services, and the availability and accessibility of nutrition services vary among and within regions and States. In general, nutrition services are underfunded and understaffed in relation to client need.

Within recent years, DHHS has evidenced an enhanced interest in the role of nutrition in outcome of pregnancy, child growth and development, lifelong disease prevention, and health promotion. A basic issue for DHHS is developing the capacity for ensuring high quality, effective nutritional care as an element in the public health and primary health services for mothers and children and attempting this service through legislation, regulation, administrative guidelines, funding criteria, or the setting of quality assurance standards for ambulatory nutritional care.

A second issue is who should provide nutritional care and whether physicians, nurses, social workers, and multipurpose community health workers can be adequately trained and motivated by nutrition professionals to provide knowledgeable and appropriate nutritional care to clients. Should the cadre of nutritional professionals and paraprofessionals be enlarged to provide most of the nutritional care or is an appropriate mix the most effective?

A third issue is the financing of nutritional care no matter who provides it. Currently, no DHHS funds are specifically earmarked for nutrition services, and competition is keen for health service dollars. Potential options include providing new appropriations earmarked for expanded nutrition services, reallocating existing funds through funding criteria or through mandating nutrition services, or encouraging States to use Medicaid funds or other third-party payment sources for nutrition services. Provision for nutrition services should be included in any national entitlement program enacted in the future.

Many State and local public health agencies are currently experiencing severe cutbacks in funds for nutrition staff. For example, the increased availability of WIC funds for the services of nutritionists in some cases has been caused by the reallocation of former Title V nutrition program funds to other services. After Proposition 13 was passed in California, eight health departments lost funds for nutrition services (*133*). These losses totaled $134,419 and represented 6.6 percent of the total funding allocated in California for nutrition staff in fiscal 1977–78. These losses were related in part to a reduction in State grants for maternal and child health and were attributed to Proposition 13. Over $96,000 (12.3 percent of all locally supplied revenues for nutrition) was from local revenues. Although these losses appeared to be offset by WIC revenue increases, the WIC eligible population is much more narrowly defined, depriving many women and children over age 5 from eligibility for nutrition services. The impact of Proposition 13 on California public health nutrition services has been studied in detail in terms of changes in funding, staffing, and time allocation.

A major issue is the various interrelationships and linkages between DHHS maternal and child health services and the USDA child food assistance programs. Ideally, eligibility criteria should be consistent, service delivery systems should be integrated, and costs for maternal and child health and nutrition services and WIC should be shared. School health and school health education service potentially can tie in with School Breakfast and Lunch programs. Issues of coordination and linkages between these programs depend largely on Federal, State, and local administrative structures, regulations, and procedures for monitoring and auditing.

PROGRAM AND POLICY OPTIONS

The policy decisions that influence food supply and demand originate from widely divergent sources, ranging from agencies of the Federal Government with various mandates (e.g., incomes and price policies,

health protection and promotion, and agricultural and food processing-marketing issues) to private-sector food manufacturing, health insurance, and health care providers. A large number of factors, including nutritional care provided in maternal and child health programs, indirectly affect nutrition by changing the level and nature of food demand. U.S. Government policy options for improving nutrition and the diet include a wide range of regulatory and program alternatives, many of which could influence maternal and child nutrition.[7]

Food Supply

The food supply determines which foods (in specified forms with specified nutritional content) are available in each locale at different times of the year. The U.S. Department of Agriculture and other Government agencies may provide price supports or lower production costs through other subsidies and in other ways to affect the kinds and quantities of available foods.

One of the major issues confronting nutrition policymakers is developing policies to deal with major shifts in food supply and distribution. Government intervention in food production and distribution includes research in animal and plant production and soil and water; price controls, crop acquisition and storage; regulation of insecticides, fertilizers, and pest control; international trade; and regulation of food safety, food fortification, processing, and vending and restaurant services (see table 10). The nutritional benefits and costs of such multiple activities are poorly understood.

One food supply issue relevant to maternal and child health is the role of the ubiquitous vending machine, which offers food relatively high in sugar, salt, and calories but which accounts for about $10.5 billion per annum in food expenditure (*135, 136*). A number of studies and efforts are underway to determine ways in which the quality of the food in vending machines can be improved.

The proportion of meals and snacks eaten away from home has recently increased in restaurants, fast food chains, and more traditional places such as work-place cafeterias. Little is known about the resultant health and nutrition impact. One of the important issues that must be faced in considering the nutrition implications of food supply sources is the contrast in nutritional content and resultant health significance ensuing from increasing consumption of processed foods versus natural counterparts.

Food Demand

The demand for food is affected by the price of food products, the available consumer resources for obtaining food, and access to food

[7]The Comptroller General is completing an inventory of 359 Federal food, nutrition, and agriculture programs in 28 U.S. Government agencies (*134*).

TABLE 10. Potential Government Influences on Food Supply

Food Supply Factors	Agency	Key Government Department or Major Function
Research (Nutrient content, yields, inputs, other factors of production such as mechanization, processing, marketing)	USDA	Animal and plant production research; research on soil, water
	NSF-NIH-private sector	Basic research (genetics, plant phytopathology, etc.)
	NOAA-Commerce	Fish-seafood production, water safety
Costs of production Credit-infrastructure	USDA	FHA provides rural development, housing, conservation grants
Crop acquisition, storage, guaranteed pricing, acreage limitations	USDA	
Insecticides, fertilizers, etc.	USDA-FDA	FDA regulates usage based on health risks; USDA funds research
Pest control	USDA	Controls and prevents pest, plant, animal diseases (APHIS, CSRS)
International trade Quotas, tariffs, exports	USDA-Commerce	
Regulations Preservatives, food safety	USDA-FDA	FDA—nutrient safety, quality of processed foods; USDA—inspects, ensures safe, wholesome, nutritious food (FSQS); detection of food contamination
Fortification-enrichment	FDA	FDA considers nutrient bioavailability for fortification, sets fortification-enrichment levels (minimum, maximum)
Processing (additives, preservatives, sanitation, grading)	USDA	Food safety and quality serviced FSQS
Vending (availability, content)	USDA-FDA	FDA—considers nutrient availability of processed foods; USDA—sets regulations for vending machines in schools with feeding programs
Restaurant sector	Local government	

through various Federal food programs. Table 11 presents some of the possible intervention points in the food demand chain. Food advertising, food labeling and grading, child nutrition programs, and ambulatory nutritional care are the relevant issues related to the demand for food and are addressed here only briefly.

Food advertising (e.g., brand identification) often delivered in creative and subtle ways by the food industry to influence food choice represents a significant proportion of the United States' food bill. Estimates of the costs of food advertising range from $1 billion (*137*) to $6 billion a year (or 3 percent of our food bill) (*135*). In addition, Brewster and Jacobson estimate that the American people pay about $26 billion, or 3 percent, of their food bill for packaging that is often another form of advertising (*135*). In contrast, very little money is spent on nutrition education, which may be necessary to counteract the influence of food advertising.

The Federal Trade Commission (FTC) and other Government regulatory commissions have considered a number of options for limiting the impact of food advertising, particularly that aimed at children. Child-oriented television advertising is mainly for food and is largely focused on sugared foods (*138*). The average child between the ages of 2 and 11 years will view 20,000 television commercials. Child psychologists, dentists, nutritionists, and child advocates believe that these advertisements have had an adverse effect on child health (*138*). It is important to note that while the FTC has been considering curbs in child-oriented advertising, Congress has been considering limits on FTC's consumer protection authority, particularly its power to restrict "unfair" advertising, which forms the basis of the FTC children's advertising inquiry.

Food labeling and grading are other issues that are being hotly debated by nutrition and consumer groups (*139, 140*). If the United States is to promote the U.S. Dietary Goals, careful research and policy changes must be implemented in this area. For example, the long-term increase in consumption of fat-marbled beef provides more saturated fats and cholesterol than the leaner forage-fed beef of 50 years ago (*141*). Food grading could be changed to promote consumption of the leaner beef (*140*).

The key USDA maternal and child nutrition programs noted previously also affect food demand, as do other major USDA programs such as the Child Care Feeding Program, the Expanded Food and Nutrition Education Program, and DHHS programs such as Head Start, social welfare (e.g., Aid to Families with Dependent Children), maternal and child health care, and school health programs.

Nutrition services, whether perceived as health promotion or disease prevention, can affect consumer food choice, and nutrition assessment of individuals, food supplementation, and nutrition counseling and education can affect food demand. Ambulatory nutritional care is provided to some mothers and children by public health agencies using funds from Title V of the Social Security Act. Potential Government influences on the use of ambulatory nutritional care in health care are presented in table 12.

TABLE 11. Potential Government Influences on Food Demand

Food Demand Determinants	Key Government Department or Agency	Major Function
Food prices Subsidized prices by school meals, and other programs (also partly income supplements)	USDA	Reduces price of school lunches, provides commodities for child and elderly feeding programs and consequently reduces their costs
Income-assets Social Security and welfare system	DHHS	Provides Social Security, SSI, AFDC, AID to handicapped, etc.
Employment-work conditions	Department of Labor	Maternity leave, child care, other practices
Veterans payment	VA	
Direct feeding—preschoolers	USDA-DHHS	Child care feeding programs and food commodities of USDA, and Head Start of DHHS
School feeding Elderly feeding	USDA DHHS-USDA	School lunch and school breakfast programs, milk program, AOA feeding programs, also USDA commodity foods program
Education—public sector School curricula	Department of Education	State, local, Federal inputs into health education programs in schools
School health programs	DHHS	
Ambulatory nutrition care[1]	DHHS	State-local public health nutrition service
Home economics extension	USDA	Extension Service work vs. home economics and nutrition; also 4-H youth programs
Education—private sector Advertising (radio-TV-price)	FCC-FTC-FDA	FDA—studies consumer perceptions about food values, considers changes; FTC—prevents false and deceptive advertising
Labeling-grading	FTC-USDA-FDA	FTC—regulates packaging and labeling of certain foods and drugs; USDA—regulates others; FDA—regulates tobacco, alcohol, drugs
Religious and social institutions	Private-voluntary sector	

[1]This determinant is expanded in table 12.

TABLE 11. Potential Government Influences on Food Demand (Cont.)

Food Demand Determinants	Key Government Department or Agency	Major Function
Ambulatory nutrition care	Private sector	
Others	Public health	
	Private-voluntary sector	
Household size-composition	DHHS-private-voluntary	
Family planning	sectors	

Financing Nutrition Services

In a sense, the financing of nutrition programs cannot be considered without considering the broader question of whether maternal and child health care is a right or a business. A great deal of attention has been focused on the issue of third-party reimbursement to the nutrition provider through public and private financing mechanisms (*142, 143*). At present, a few health insurance companies reimburse registered dietitians as independent providers, usually when referred by physicians. However, this procedure is not consistent across the country or even within a given insurance company (*143*). When nutritional care is reimbursable, it is usually for persons with chronic diseases. Nutritional care in health promotion for mothers and children is the rationale behind selected DHHS maternity and infant care and children and youth projects.

CONCLUSION

Major nutritional inadequacies exist in the United States that have an impact on neonatal, infant, child, and adult mortality, morbidity, and intellectual capacity. Children and pregnant women are particularly vulnerable to nutritional deficiencies. Certain of these deficiencies are more pronounced in specific subgroups, and many of them are associated with income levels, race, sex, and age. However, changing patterns of nutrition related to prosperity and convenience are affecting the entire population and are changing the prevalence of some nutrition-related abnormalities.

Recently, a new awareness of the relationship between nutrition and health has arisen, and research and programs to address nutrition problems have expanded substantially. However, much is still not understood, and many people remain nutritionally at risk.

Major Federal Government nutrition programs have been implemented over the years to meet the nutritional needs of the American population, and many are designed for low-income women and children. However,

TABLE 12. Potential Government Influence on the Provision of Ambulatory Nutrition Care Services as a Component of Health Care

Ambulatory Nutrition Care Dimensions	Some Key Government Departments and Agencies	Major Function
Training—nutrition and health personnel	DHHS	BCHS, NIH, elsewhere fund nutrition training for nutritionists, other health professionals (nurses, M.D.'s, dentists) and social scientists; development of training materials
Research—needs, options, programs impact, and effectiveness	NIH-HSRC-CDC-HRA of DHHS	Basic physiological needs; metabolic studies; consequences of nutritional status on disease; environmental, other food constraints; aging; nutrition assessment (e.g., HANES and CDC surveillance; health care use, expenditures)
	SEA-FNS of USDA	Human requirements for nutrients, food composition and improvement, food consumption (e.g., NFCS), and food policy, food usage
	BCCHS-DHHS	Nutrition for maternal and child health
	DOD-VA	Nutrition standards for Armed Forces, evaluation of diet and needs; VA research on diet and disease and nutrient requirements
	NSF	Research in education, behavioral and social sciences on foods and nutrition
Funding of services (demand for services)		
Public—Medicare-Medicaid	DHHS	Direct funding of private and nonprofit services through insurance
Private—insurance sector	FTC-insurance industry	Determination of reimbursement rates and types of nutrition services included in policies; regulations of insurance sector practices

because of inconsistencies in objectives among the various programs and because of unevenness of administration at the Federal, State, and local levels, the programs have had different rates of outreach and success within different areas, and their effectiveness for meeting the needs of eligible populations is unknown.

In addition, Government interventions in food supply and food demand are many and varied and also have an impact on nutrition and costs of food, which affect the wider population. Government policy and programs now face the contemporary challenge of responding to emerging nutrition problems (for instance, the role of diets in health promotion and prevention of chronic degenerative disease), while continuing to address existing problems of hunger and undernutrition for which many Government programs were initially designed. This challenge will require great efforts at cooperation and coordination among Federal, State, and local government agencies.

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REFERENCES

(*1*) Hamburg, D. A. "Disease Prevention: The Challenge of the Future." *American Journal of Public Health* 69: 1026–1033, 1979.

(*2*) U.S. Department of Health, Education, and Welfare, Public Health Service. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention.* Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79–55071, 1979.

(*3*) U.S. Congress, Senate, Select Committee on Nutrition and Human Needs. *Eating in America: Dietary Goals for the United States.* Washington, D.C.: U.S. Government Printing Office, 1977.

(*4*) Karn, H. N. and L. S. Penrose. "Birth Weight and Gestation Time in Relation to Maternal Age, Parity and Infant Survival." *Annals of Eugenics* 16: 147, 1951.

(*5*) Naeye, R. L., W. Blanc, and C. Paul. "Effect of Maternal Nutrition on the Human Fetus." *Pediatrics* 52: 494–503, 1973.

(*6*) Shapiro, S., E. Schlesinger, and R. Nesbitt. *Infant, Perinatal, Maternal and Childhood Mortality in the U.S.* Cambridge, Mass.: Harvard University Press, 1968.

(*7*) U.S. National Institutes of Health. *Collaborative Perinatal Study of the National Institute of Neurological Diseases and Stroke: The Women and Their Pregnancies.* U.S. Department of Health, Education, and Welfare, National Institutes of Health, Bethesda, Md., 1971.

(*8*) Van den Berg, B. J. "The Relationship of Rate of Intrauterine Growth of Infants of Low Birth Weight to Mortality, Morbidity and Congenital Anomalies." *Journal of Pediatrics* 69: 531, 1966.

(*9*) Antonov, A. M. "Children Born during the Siege of Leningrad in 1942." *Journal of Pediatrics* 30: 250–259, 1947.

(*10*) Smith, C. "Effects of Maternal Undernutrition upon Newborn Infants in Holland (1944–1945)." *Journal of Pediatrics* 30: 229–243, 1947.

(*11*) Higgins, A. C. "Montreal Diet Dispensary Study in Nutritional Supplementation and the Outcome of Pregnancy." In *Proceedings of a Workshop,* pp. 93–104. National Academy of Sciences, Washington, D.C., 1973.

(*12*) Habicht, J. P., C. Yarbrough, A. Lechtig, and R. E. Klein. "Relation of Maternal Supplementary Feeding during Pregnancy to Birthweight and Other Socio-biological Factors." Paper presented at the Symposium on Intrauterine Malnutrition, New York, November 1972.

(13) Lechtig, A., H. Delgado, R. Martorell, D. Richardson, C. Yarbrough, and R. E. Klein. "Effect of Maternal Nutrition on Infant Mortality." In *Nutrition and Human Reproduction*, pp. 147–174. W.H. Mosley, ed. New York: Plenum Press, 1978.

(14) Winick, M. *Nutrition and Fetal Development*. New York: Wiley, 1974.

(15) Baird, D. "The Epidemiology of Prematurity." *Journal of Pediatrics* 65: 909–924, 1964.

(16) Naeye, R. L. "Weight Gain and the Outcome of Pregnancy." *American Journal of Obstetrics and Gynecology* 135: 3–9, 1979.

(17) Osofsky, H. J. "Relationship Between Nutrition During Pregnancy and Subsequent Infant and Child Development." *Obstetrical and Gynecological Survey* 30: 227–241, 1975.

(18) Susser, M. and Z. Stein. "Prenatal Nutrition and Subsequent Development." *The Epidemiology of Prematurity*, pp. 177–189. D. M. Reed and F. J. Stanley, eds. Baltimore-Munich: Urban and Schwarzenberg, 1977.

(19) Butler, N. R. and E. D. Elberman. *Perinatal Problems: Second Report of the 1958 British Perinatal Survey*. Edinburgh/London: Livingston Press, 1969.

(20) Lewis, R. "Relationships Between Birth Weight and Selected Social, Environmental, and Medical Care Factors." *American Journal of Public Health* 63: 973–981, 1973.

(21) Stockwell, E. "Infant Mortality and Socio-Economic Status." *Milbank Memorial Fund Quarterly* 40: 101–111, 1962.

(22) Weiner, G. "Demographic Correlates of Low Birth Weight." *American Journal of Epidemiology* 91: 260–272, 1970.

(23) Ebbs, J. H., F. F. Tisdall, and W. A. Scott. "The Influence of Prenatal Diet on the Mother and Child." *Milbank Memorial Fund Quarterly* 20: 35–46, 1942.

(24) Tompkins, W. T., R. M. Mitchell, and D. G. Wiehl. "Maternal Nutrition Studies at Philadelphia Lying In Hospital. Maternal Studies II." In *The Promotion of Maternal and Newborn Health*, pp. 25–50. New York: Milbank Memorial Fund, 1955.

(25) National Academy of Sciences. *Maternal Nutrition and the Course of Pregnancy*. Washington, D.C.: Academic Press, 1970.

(26) Terris, M. and E. M. Gold. "Epidemiologic Study of Prematurity in Relation to Smoking, Health Volume, Employment and Physique." *American Journal of Obstetrics and Gynecology* 103: 358–370, 1969.

(27) Kessner, D. M., J. Singer, C. E. Kalk, and E. R. Schlesinger. *Infant Death: An Analysis by Maternal Risk and Health Care*. National Academy of Sciences, Washington, D.C., 1973.

(28) Burke, B., V. Harding, and H. Stuart. "Nutrition Studies during Pregnancy: IV. Relation of Protein Content of Mother's Diet during Pregnancy to Birth Length, Birth Weight and Condition of Infant at Birth." *Journal of Pediatrics* 23: 506–515, 1943.

(29) Cameron, G. S. and S. Graham. "Antenatal Diet and Its Influence on Stillbirths and Prematurity." *Glasgow Medical Journal* 142: 1–7, 1944.

(30) Bergner, L. and M. W. Susser. "Low Birth Weight and Perinatal Nutrition: An Interpretive Review." *Pediatrics* 46: 946–963, 1970.

(31) Berry, K. and D. G. Wiehl. "An Experiment in Diet Education during Pregnancy." *Milbank Memorial Fund Quarterly* 30: 119–151, 1952.

(32) Mason, M. and J. M. Rivers. "Factors Influencing Plasma Ascorbic Acid Levels of Pregnant Women. II. Predicting Changes in Levels Following Dietary Instructions." *Journal of the American Dietetic Association* 56: 321, 1970.

(33) Hunt, E., M. Jacko, N. J. Ostergard, G. Masie, V. Clark, and A. Coulson. "Effect of Nutrition Education on the Nutritional Status of Low Income Women of Mexican Descent." *American Journal of Clinical Nutrition* 29: 675, 1976.

(34) Kafatos, A. G. and P. Zee. "Nutritional Benefits from Federal Food Assistance: A Survey of Preschool Black Children from Low-income Families in Memphis." *American Journal of Diseases of Children* 131: 265–269, 1977.

(35) Kaminetzky, H., A. Langer, H. Baker, O. Frank, A. Thomson, E. Munves, A. Opper, F. Behrle, and B. Glista. "The Effect of Nutrition of Teenage Gravidas on Pregnancy and the Status of the Neonate." *American Journal of Obstetrics and Gynecology* 115: 639–646, 1973.

(36) Baumgardner, L. "Weight in Relation to Fetal and Newborn Mortality." *Pediatrics* 6: 329, 1950.

(37) Heady, J. A. and C. Daly. "Social and Biological Factors in Infant Mortality." *Lancet* (268): 395–399, 1955.

(38) Alberman, E. "Stillbirth, Neonatal Mortality in England and Wales by Birthweight 1953–71." *Health Trends* 6: 1, 1974.

(39) Kaltrieder, D. F. and J. W. C. Johnson. "Patients at High Risk for Low Birth Weight Deliver." *American Journal of Obstetrics and Gynecology* 124: 251–256, 1976.

(40) Davies, D. P., O. P. Gray, P. C. Ellwood, and M. Abernathy. "Cigarette Smoking in Pregnancy: Associations with Maternal Weight and Fetal Growth." *Lancet* 1: 385–387, 1976.
(41) Little, R. "Moderate Alcohol Use During Pregnancy and Decreased Infant Birth Weight." *American Journal of Public Health* 67: 1154–1157, 1977.
(42) Meyer, M. B., B. C. Jonas, and J. A. Tonasia. "Perinatal Events Associated with Maternal Smoking During Pregnancy." *American Journal of Epidemiology* 103: 464–476, 1976.
(43) Whiting, M., S. Whitman, L. Bergner, and P. Sherman. "Addiction and Low Birth Weight: A Quasi Experimental Study." *American Journal of Public Health* 68: 676–681, 1978.
(44) Fielding, J. and A. Yankauer. "The Pregnant Smoker." *American Journal of Public Health* 68: 835, 1978.
(45) Snowman, M. K. "Nutrition Component in a Comprehensive Child Development Program." *Journal of the American Dietetic Association* 74: 124–129, 1979.
(46) Blackburn, M. W., and D. H. Calloway. "Energy Expenditure and Consumption of Mature, Pregnant, and Lactating Women." *Journal of the American Dietetic Association* 69: 29–37, 1976.
(47) Thompson, M. F., E. H. Morse, and S. B. Merrow. "Nutrient Intakes of Pregnant Women Receiving Vitamin-Mineral Supplements." *Journal of the American Dietetic Association* 64: 382–385, 1974.
(48) Harrill, I., L. Lynch, and D. Shipman. "Nutritive Value of Foods Selected During Pregnancy." *Journal of the American Dietetic Association* 63: 164–167, 1973.
(49) Stevens, H. A. and M. A. Ohlson. "Nutritive Value of the Diets of Medically Indigent Pregnant Women." *Journal of the American Dietetic Association* 50: 290–296, 1967.
(50) Singleton, N. C., H. Lewis, and J. J. Parker. "The Diet of Pregnant Teenagers." *Journal of Home Economics* 68(4): 43–45, 1976.
(51) King, J. C., S. H. Cohenour, D. H. Calloway, and H. N. Jacobson. "Assessment of Nutritional Status of Teenage Pregnant Girls." *American Journal of Clinical Nutrition* 25: 916, 1972.
(52) Osofsky, H. J., P. T. Rizk, M. Fox, and J. Mondanaio. "Nutritional Status of Low Income Pregnant Teenagers." *Journal of Reproductive Medicine* 6: 52–56, 1971.
(53) McGanity, W. J., H. M. Little, A. Fogelman, L. Jennings, E. Calhoun, and E. B. Lawson. "Pregnancy in the Adolescent. I. Preliminary Summary of Health Status." *American Journal of Obstetrics and Gynecology* 103: 773–788, 1969.
(54) White, H. S. "Iron Deficiency in Young Women." *American Journal of Public Health* 60: 659–665, 1970.
(55) Beer, A. E. and R. E. Billingham. "Immunologic Benefits and Hazards of Milk in Maternal-Perinatal Relationship." *Annals of Internal Medicine* 83: 865–871, 1975.
(56) Goldman, A. S. "Immunologic Aspects of Human Lactation." In *Symposium on Human Lactation.* Lucy R. Waletzky, M.D., ed. U.S. Department of Health, Education, and Welfare, Bureau of Community Health Services, Health Services Administration, Public Health Service, Rockville, Md., DHEW Publication Number (HSA) 79-4107, 1976.
(57) Hambraeus, L. "Proprietary Milk Versus Human Breast Milk in Infant Feeding: A Critical Appraisal from the Nutritional Point of View." *Pediatric Clinics of North America* 24(1): 17–36, 1977.
(58) Fraiberg, S. H. *Every Child's Birthright: In Defense of Mothering.* New York: Basic Books, 1977.
(59) Klaus, M. H. and J. H. Kennel. *Maternal-Infant Bonding.* St. Louis: Mosby, 1976.
(60) Klaus, M. H., N. Plumb, and S. Zuehike. "Human Maternal Behavior at First Contact with Her Young." *Pediatrics* 46: 187, 1970.
(61) Newton, N. "Psychologic Differences between Breast and Bottle Feeding." *American Journal of Clinical Nutrition* 24: 993–1004, 1971.
(62) Jelliffe, D. B. and E. F. P. Jelliffe. "Fat Babies: Prevalence, Perils and Prevention." *Journal of Tropical Pediatrics and Environamental Child Health* 21: 123–154, 1975.
(63) Weil, B. W., Jr. "Infantile Obesity." *Pediatric Basics,* 1974.
(64) Taitz, L. S. "Obesity in Pediatric Practice: Infantile Obesity." *Pediatric Clinics of North America* 24: 107–115, 1977.
(65) Dobbing, J. and J. Sands. "Quantitative Growth and Development of the Human Brain." *Archives of Diseases of Childhood* 48: 757, 1973.
(66) Dobbing, J. "Undernutrition and the Developing Brain." *American Journal of Diseases of Children* 120: 411, 1970.
(67) Winick, M. "Nutrition and Nerve Cell Growth." *Federation Proceedings* 29: 1510, 1970.
(68) Winick, M., P. Rosso, and J. Waterlow. "Cellular Growth of Cerebrum, Cerebellum and Brain Stem in Normal and Marasmic Children." *Experimental Neurology* 26: 393, 1970.
(69) Lloyd-Still, J. D., P. H. Wolff, I. Hurwitz, and H. Shwachman. "Studies on Intellectual

Development after Severe Malnutrition in Infancy in Cystic Fibrosis and Other Intestinal Lesions." In *Proceedings of the 9th International Congress of Nutrition*, Vol. 2, pp. 357–374. Basel: S. Karger, 1975.

(70) Stein, Z., M. Susser, G. Saenger, and F. Marolla. "Nutrition and Mental Performance." *Science* 173: 708–713, 1972.

(71) Klein, P. S., G. B. Forbes, and P. R. Nader. "Effects of Starvation in Infancy (Pyloric Stenosis) on Subsequent Weaning Abilities." *Journal of Pediatrics* 87: 8–15, 1975.

(72) Read, M. S. "Malnutrition, Hunger and Behavior." *Journal of the American Dietetic Association* 63: 386–391, 1973.

(73) Winick, M., P. Rosso, and J. Waterlow. "Malnutrition and Environmental Enrichment by Early Adoption." *Science* 190: 1173–1175, 1975.

(74) Eid, E. E. "Follow-up Study of Physical Growth of Children Who Had Excessive Weight Gain in the First Six Months of Life." *British Medical Journal* 2: 74, 1970.

(75) Channey, E., H. C. Goodman, M. McBride, B. Lyon, and R. Pratt. "Childhood Antecedants to Adult Obesity." *New England Journal of Medicine* 295: 6, 1976.

(76) Dine, M. S., P. S. Gartside, C. J. Glueck, L. Rheines, G. Greene, and P. Khoury. "Where Do the Heaviest Children Come From? A Prospective Study of White Children from Birth to 5 Years of Age." *Pediatrics* 63: 107, 1979.

(77) Mellbin, T. and J. C. Vuille. "Physical Development at 7 Years of Age in Relation to Velocity of Weight Gain in Infancy with Special Reference to the Incidence of Overweight." *British Journal of Preventive and Social Medicine* 27: 225, 1973.

(78) Poskitt, E. M. E. "Overfeeding and Overweight in Infancy and Their Relation to Body Size in Early Childhood." *Nutrition and Metabolism* 21(1, Supplement): 54–55, 1977.

(79) Fomon, S. J. "A Pediatrician Looks at Early Nutrition." *Bulletin of the New York Academy of Medicine* 47: 569, 1971.

(80) Hahn, P. and O. Kolkovsky. *Utilization of Nutrients During Postnatal Development*. New York: Pergamon, 1966.

(81) Reiser, R. and Z. Sidelman. "Control of Serum Cholesterol Hemostasis by Cholesterol in the Milk of the Suckling Rat." *Journal of Nutrition* 102: 1009, 1972.

(82) Schubert, W. K. "Fat, Nutrition and Diet in Childhood." *American Journal of Cardiology* 31: 581, 1973.

(83) Fomon, S. J. *Infant Nutrition*. 2d ed. Philadelphia: W. B. Saunders, 1974.

(84) Berenson, G. S., S. R. Srinivasun, R. R. Frerichs, and L. S. Webber. "Serum High Density Lipoprotein and Its Relationship to Cardiovascular Disease Risk Factor Variables in Children—The Bogalusa Heart Study." *Lipids* 14(1): 91–98, 1979.

(85) Oski, F. "The Nonhematologic Manifestations of Iron Deficiency." *American Journal of Diseases of Children* 133: 315–322, 1979.

(86) Eppright, E. S., H. M. Fox, B. A. Freyer, G. H. Lamkin, V. M. Vivian, and E. S. Fuller. "Nutrition of Infants and Preschool Children in the North Central Region of the U.S.A." *World Review of Nutrition and Dietetics* 14: 269–332, 1972.

(87) Cowell, C., E. Maalansky, M. Grossi, R. Dash, S. Kayman, and M. Archer. "Survey of Infant Feeding Practices." *American Journal of Public Health* 63: 138–141, 1973.

(88) Hirshman, C. and M. Butler. "Breast-Feeding in the United States." Department of Sociology, Duke University, Durham, N.C., 1977.

(89) Fomon, S. J. "What Are Infants Fed in the United States?" *Pediatrics* 56: 350–354, 1975.

(90) Martinez, G. A. and J. P. Nalezienski. "The Recent Trend in Breast-Feeding." *Pediatrics* 64: 686–692, 1979.

(91) Hendershot, G. E. "Trends in Breast-Feeding." *Advance Data of National Center for Health Statistics* (59): 1–6, 1980.

(92) U.S. Deparment of Health, Education, and Welfare. Health Services and Mental Health Administration. *Ten State Nutrition Survey, 1968–1970*. Center for Disease Control, Atlanta. DHEW Publication Number (HMS) 72-8310 through 72-8133.

(93) Garn, S. M., N. J. Smith, and D. G. Clark. "The Magnitude and Implications of Apparent Race Differences in Hemoglobin Values." *American Journal of Clinical Nutrition* 28: 563, 1975.

(94) Pipes, P. L. "When Should Semi-Solids Be Fed to Infants?" *Journal of Nutrition Education* 9: 57, 1977.

(95) Nizel, A. E. "Preventing Dental Caries: The Nutritional Factors." *Pediatric Clinics of North America* 24: 141–155, 1977.

(96) Owen, G. M. "A Study of Nutritional Status of Preschool Children in the United States, 1968–70." *Pediatrics* 53 (Supplement), 1974.

(97) Hambridge, K. M., C. Hambridge, M. Jacobs, *et al.* "Low Levels of Zinc in Hair, Anorexia, Poor Growth and Hypogeusia in Children." *Pediatric Research* 6: 868, 1972.
(98) Hambridge, K. M., P. A. Walravens, R. M. Brown, *et al.* "Zinc Nutrition of Pre-school Children in the Denver Head Start Program." *American Journal of Clinical Nutrition* 29: 734, 1976.
(99) Stricker, E. M. and M. J. Zigmond. "Brain Catecholamines and the Lateral Hypothalmic Syndrome." In *Hunger: Basic Mechanisms and Clinical Implications*, pp. 19–32. D. Novin, W. Wyrwicka, and G. Bray, eds. New York: Raven Press, 1976.
(100) Pollitt, E. and R. Leibel. "Iron Deficiency and Behavior." *Pediatrics* 88: 372–381, 1976.
(101) Popkin, B. M. and M. Lim-Ybanez. "Nutrition and School Achievement." *Social Science and Medicine*, in press.
(102) Read, M. S. "Anemia and Behavior." *Modern Problems in Pediatrics* 14: 189–202, 1975.
(103) Smith, N. and E. Rios. "Iron Metabolism and Iron Deficiency in Infancy and Childhood." Mimeographed, no date.
(104) Finch, C., L. Miller, A. R. Inamdar, R. Person, K. Seiler, and B. Mackler. "Iron Deficiency in the Rat: Physiological and Biochemical Studies of Muscle Dysfunction." *Journal of Clinical Investigation* 58: 447–453, 1976.
(105) Pollitt, E., D. Greenfield, and R. Leibel. "Behavioral Effects of Iron Deficiency among Preschool Children in Cambridge, Mass." *Federation Proceedings* 37: 487, 1978.
(106) Chandra, R. and P. Newberne. *Nutrition, Immunity and Infection.* New York: Plenum, 1976.
(107) Harley, J. P. and C. G. Matthews. "The Feingold Hypothesis: Current Studies." *Journal of the Medical Society of New Jersey* 76: 127–129, 1979.
(108) Tryphonas, H. and R. Trites. "Food Allergy in Children with Hyperactivity, Learning Disabilities and/or Minimal Brain Dysfunction." *Annals of Allergy* 42: 22–27, 1979.
(109) Abrams, B. F., S. Shultz, S. Margen, D. Ogar. "Perspectives in Clinical Research: A Review of Research Controversies Surrounding the Feingold Diet." *Family and Community Health* 1(4): 93–113, 1979.
(110) Harley, J. P., C. G. Matthews, and P. Eichman. "Synthetic Food Colors and Hyperactivity in Children: A Double-Blind Challenge Experiment." *Pediatrics* 62: 975–983, 1978.
(111) Conners, C. "Food Additives and Hyperkinesis: A Controlled Double Blind Experiment." *Pediatrics* 58: 154–166, 1976.
(112) Srinivasan, S., R. Frerich, and G. Berenson. "Serum Lipids and Lipoproteins in Children." In *Atherosclerosis: Its Pediatric Aspects*, pp. 85-110. William B. Strong, ed. New York: Grune and Stratton, 1978.
(113) Strong, W. B., ed. *Atherosclerosis: Its Pediatric Aspects.* New York: Grune and Stratton, 1978.
(114) D'Augelli, A. and H. Smiciklas-Wright. "The Case for Primary Prevention of Overweight through the Family." *Journal of Nutrition Education* 10: 76–78, 1978.
(115) Brownell, K. D. and A. J. Stunkard. "Behavioral Treatment of Obesity in Children." *American Journal of Diseases of Children* 132: 403–412, 1978.
(116) Cacciari, E., Z. Laron, and S. Raiti, eds. *Childhood Obesity and Hypertension.* New York: Academic Press, 1978.
(117) Abraham, S. and M. Nordsieck. "Relationship of Excess Height in Children and Adults." *Public Health Reports* 75: 263, 1960.
(118) Fixler, D. E., W. P. Laird, V. Fitzgerald, S. Snead, and R. Adams. "Hypertension Screening in Schools: Results of the Dallas Study." *Pediatrics* 63: 32–36, 1979.
(119) Kilcoyne, M., R. Richter, and P. Alsup. "Adolescent Hypertension." *Circulation* 50: 758–764, 1974.
(120) Levine, R. S., C. H. Hennekens, B. Klein, P. Ferrer, J. Gourley, J. Cassady, H. Gelband, and M. J. Jesse. "A Longitudinal Evaluation of Blood Pressure in Children." *American Journal of Public Health* 69: 1175–1177, 1979.
(121) Berry, G. L. "Hypertension and Arterial Development: Long Term Considerations." *British Heart Journal* 40: 709–717, 1978.
(122) National Heart, Lung, and Blood Institute Task Force on Blood Pressure Control in Children. "Recommendations of the Task Force on Blood Pressure Control in Children." *Pediatrics* 59 (Supplement): 799–820, 1977.
(123) Weidman, W. H. "High Blood Pressure (Hypertension) and the School-Age Child." *Journal of School Health* 49: 213–214, 1979.
(124) Dahl, L. S. "Salt and Hypertension." *American Journal of Clinical Nutrition* 25: 231–244, 1972.
(125) Breslow, J. "Pediatric Aspects of Hyperlipidemia." *Pediatrics* 62: 510–519, 1978.
(126) Castelli, W., J. Doyle, T. Gordon, C. Hames, M. Hjortland, S. Hulley, A. Kagan, and W. Zubel. "HDL Cholesterol and Other Lipids in Coronary Heart Disease." *Circulation* 55: 767–772, 1977.
(127) Wood, P. P., W. Haskell, H. Klein, S. Lewis, M. P. Stern, and J. W. Farquhar. "The Distribution of Plasma Lipoproteins in Middle Aged Male Runners." *Metabolism* 25: 1249–1257, 1976.

(*128*) Morrison, J. A., I. deGroot, K. A. Kelly, B. K. Edwards, M. J. Mollies, S. Tillett, P. Khoury, and C. J. Glueck. "High and Low Density Lipoprotein Cholesterol Levels in Hypercholesterolemic School Children." *Lipids* 14(1): 99–104, 1979.

(*129*) Rifkind, B. M., I. Tamir, G. Heiss, R. B. Wallace, and H. A. Tyroler. "Distribution of High Density and Other Lipoproteins in Selected LRC Prevalence Study Populations: A Brief Survey." *Lipids* 14: 105–112, 1979.

(*130*) Garn, S. and D. Clark. "Nutrition, Growth, Development and Maturation: Findings from the Ten State Nutrition Survey of 1968-1970." *Pediatrics* 56: 306–319, 1975.

(*131*) National Center for Health Statistics. *Preliminary Findings of the First Health and Nutrition Examination Survey, United States, 1971–72.* Public Health Service, Hyattsville, Md., DHEW Publication Number (HRA) 75–1229, 1975.

(*132*) Report of the Select Panel for the Promotion of Child Health. Nutrition Planning. P. O. Box 8080, Ann Arbor, Michigan.

(*133*) Peck, E. and I. S. Moore. "The Impact of Proposition 13 on Local Health Department Nutrition Financing and Services." Report to the California Conference of Local Health Department Nutritionists, 1979.

(*134*) U.S. General Accounting Office. "Inventory of Federal Food, Nutrition and Agriculture Programs." U.S. General Accounting Office, Washington, D.C., U.S. GAO CED–79–125, 1979.

(*135*) Brewster, L. and M. F. Jacobson. *The Changing American Diet.* Center for Science in the Public Interest, Washington, D.C., 1978.

(*136*) Wilbur, C. S., S. M. Zifferblatt, and M. Zifferblatt. "Healthy Vending: A Cooperative Pilot Program to Stimulate Good Health in the Marketplace." National Heart, Lung, and Blood Institute, Bethesda, Md., 1979.

(*137*) Timmer, C. P. and M. C. Nesheim. "Nutrition Product Quality and Safety." School of Public Health, Harvard University, Boston, 1978.

(*138*) U.S. Federal Trade Commission. *Television Advertising to Children.* Federal Trade Commission, Washington, D.C., 1978.

(*139*) U.S. Department of Health, Education, and Welfare, Food and Drug Administration. Food Labeling Hearings, August 1978. Docket No. 78N–0158, 1978.

(*140*) U.S. Office of Technology Assessment. *Perspectives on Federal Retail Grading.* OTAF–47. Office of Technology Assessment, U.S. Congress, Washington, D.C., 1977.

(*141*) Timmer C. P. and P. Rankin. "Problems in Defining a U.S. Nutrition Policy." School of Public Health, Harvard University, Boston, 1978.

(*142*) Popkin, B. M., M. Kaufman, and I. A. Hallahan. "The Benefits and Costs of Ambulatory Nutritional Care." In *Costs and Benefits of Nutritional Care Phase I.* The American Dietetic Association, Chicago, 1979.

(*143*) Jensen, P. E., M. Kaufman, M. E. Collins, and N. Carrol. "Current Status of Third Party Reimbursement for Ambulatory Nutrition Care in the U.S. in 1979." American Dietary Association Advisory Committee on Legislation and Public Policy, Chicago, 1979.

BEHAVIORAL ASPECTS OF MATERNAL AND CHILD HEALTH: NATURAL INFLUENCES AND EDUCATIONAL INTERVENTION

by
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PREFACE

Growing emphasis on the layperson's role in protecting and improving his or her own health is slowly reshaping the health sciences and Government priorities and programs directed at health. The formation of a President's Committee on Health Education, establishment of the Bureau of Health Education within the Center for Disease Control of the Department of Health and Human Services (DHHS) (formerly the Department of Health, Education, and Welfare), congressional hearings, passage of legislation to form an Office of Health Information and Health Promotion, and the commissioning of policy papers on adult health behavior[2] and specifically troubling aspects of adolescent health,[3] all attest to changing perspectives in the approach to health.[4] Although neither the nature of the commitment nor the new course is as yet well defined or funded at a significant level, health programs promise to be different from those of previous decades.

INTRODUCTION

It is becoming increasingly recognized that behavior contributes significantly to health and illness. For example, pregnancy outcome is to a

[1]Office of Health Information and Health Promotion, Department of Health and Human Services.

[2]Recent Federal Government concerns and activities are reflected in the report of the DHEW Prevention Initiative (*1*); the Surgeon General's report (*2,3*); and the national prevention objectives (*4*).

[3]See A. L. McAlister (*5*); R. I. Evans et al. (*6*); and D. E. Green (*7*).

[4]See L. W. Green (*8*); Fogarty International Center for Advanced Study in the Health Sciences (*9*); Departmental Task Force on Prevention (*1, 10*); and P. Lehman (*11*).

large extent determined by the behavior of the mother, and the health status of her infant will be influenced by whether and to what degree she uses tobacco, alcohol, other drugs, and prenatal services, and by the quality of her diet. All of these factors are in part dependent on individual behavior. In addition, the health status of her infant will depend on the behavior of health care providers that include prepregnancy immunizations against such conditions as rubella, dietary advice and prescription of dietary supplements, and counseling in preparation for birth. At still higher levels, the "behavior" of society at large and social institutions will also affect the outcome of pregnancy, which depends on the presence or absence of quality prenatal care and delivery facilities and availability of nutritious food and environmental pollutants.

The same model can be extrapolated for infants, children, and adolescents (see table 1). Thus, the role of behavior in relation to health is multitiered and interwoven and ranges from the individual to health care and other service professionals to large private and public institutional systems including those that provide health care. Throughout all these levels of organization, health status will be determined by attitudes, knowledge, practice, and policy—all of which have significant behavioral dimensions.

The lexicon of behavioral risk reduction contains a host of overlapping terms that sound alike, but that in reality reflect widely differing goals including "health promotion," "health education," "lifestyle change," and "patient counseling." Goals and outcomes of risk reduction and education programs include

- Cost containment through a shift away from expensive tertiary care and through more "appropriate" utilization of services by patients
- Improved health status, including reduction of "at risk" status through cessation of hazardous habits and behaviors
- Promotion of patient rights through increased patient understanding and through protective mechanisms such as "informed consent" forms
- Humanization of health care including more personalized and respectful treatment by health care providers and the encouragement of a patient–physician partnership
- Increased participation in health affairs by consumers through their inclusion as members of health planning bodies, on boards of health care institutions, and as neighborhood residents and workers with a stake in protecting their own and others' health
- Lessened emphasis on environmental and other protective actions that interfere with private enterprise and a shift of focus to the individual consumer

These goals are not necessarily incompatible, nor are they the sole domain of a single interest group. They do, however, tend to differ in emphasis vis-a-vis individual freedom as against the social good. They place differing amounts of responsibility on individuals and "systems," depending on the causal model used, and they cast public and private sectors and local and centralized governments in very different roles.

TABLE 1. Behavioral Factors and Health Status Goals

Health Status Goal*	Individual Consumers Behaviors
Reduce the incidence of morbidity and mortality in mothers and infants	Smoking, nutrition, alcohol use, habituating drug use, timing of conception (child spacing, age of mother), earliness of prenatal care utilization, family development
Reduce the incidence of birth defects	Genetic counseling/amniocentesis and subsequent decision, alcohol use, over-the-counter drug use
Enhance childhood growth and development	Parenting, nutrition, child care arrangements, breast-feeding decision
Reduce childhood accidents and injuries	Water safety, traffic safety, auto restraint use, sports safety, home safety (toxic substances and other hazards), child supervision arrangements
Reduce the incidence of communicable diseases:	
vaccine preventable	Immunization use
sexually transmitted	Sexual behavior and treatment seeking
Promote dental health	Nutrition, fluoride treatment use, dental hygiene
Reduce the incidence of traumatic injury to and health:	
motor vehicle accidents	Auto restraint use, motorcycle helmet use, alcohol use, driving habits
suicide	Response to verbal and behavioral warnings, coping/adaptation, stress management
homicide	Alcohol use, coping/adaptation
Improve, preserve, and enhance the individual's general physical well-being	Smoking, nutrition, alcohol use, habituating drug use, exercise
Improve, preserve, and enhance the individual's general emotional well-being	Habituating drug use, stress management, coping/adaptation, social support system participation
Reduce the incidence and severity of premature cardiovascular morbidity and mortality	Smoking, nutrition, alcohol use, exercise, stress management, coping/adaptation
Reduce environmental hazards	Participation in organizational and political processes—health citizenship

*Based on U.S. DHEW Departmental Task Force on Prevention (*8*); U.S. DHEW Office of the Assistant Secretary for Health and Surgeon General (*2*); and other current literature.

The broad term *health promotion* refers to a range of approaches to improve or protect health including the reduction of *environmental* and *behavioral risks.* More than one set of strategies is commonly employed for the reduction of behavioral risk, including[5]

- *Automatic/protective strategies.* Among these are the highly effective public health measures including pasteurization, fluoridation, and childproof containers for toxic products. It is not always possible to elicit support for measures known to be effective protection against risks to health especially when powerful lobbies oppose less well-organized and less well-funded public interest efforts.
- *Coercive strategies.* Strategies that employ legal and other formal sanctions to control individual behavior include mandatory up-to-date immunizations for school entry and prohibiting the sale of cigarettes to persons under a certain age. Public support and understanding that counterbalance resistance to restrictions of individual freedom are important to the success of such strategies.
- *Educational strategies.* Such strategies are designed to encourage voluntary decisions conducive to health. They may be aimed primarily at individual behavior change (e.g., outreach to increase utilization of health care services and prenatal education and support groups) or they may be directed toward changes in institutions to promote, enable, or reinforce change in individuals (such as changing the appointment system in an outpatient clinic to better meet consumer needs) or to set into motion protective or coercive strategies (such as the organization of affected tenants and health interest groups to enforce existing ordinances forbidding the use of lead-based paint in rental buildings). The primary misuse of these strategies is their substitution for needed protective measures, as with overreliance on the principle of caveat emptor.

One major difference between education and automatic/protective and coercive strategies lies in the principle of voluntarism. That is, "equipping the learner to take informed and considered action for him or herself" (*13*). Consideration of these alternatives must include recognition that people will not always choose the "healthiest" course of action. As suggested above, community education can complement or bring about the adoption of the other classes of health promotion strategies. For instance, the recent flurry of legislative, regulatory, and institutional actions to restrict smoking in public places in the United States would have been inconceivable just 5 years earlier. It was not until there was sufficient public awareness of the effects of smoking on smokers and nonsmokers alike that actions were taken that were previously viewed as unacceptable infringements on individual liberty. Since the trend developed in part because of community and school health education efforts aimed at the individual it appears that these efforts also contributed to the climate in which a new kind of community action became acceptable.

[5]These categories are adapted from Robertson (*12*).

"Health education," therefore, enters into the health equation in relation to the environment, behavior, and medical care. It can be directed toward

- Individuals and health-related habits over which they theoretically have control
- Individuals as citizens with a stake in the activities and policies of private and public organizations that influence the physical, social, and economic environment
- Medical care institutions so as to relate consumers more effectively to the system for early and preventive care, for illness care, and for governance
- Local, State, and Federal decisionmakers who can alter environmental risks and design and institute other protective measures

Adding to the confusion over the definition and scope of health education is the discrepancy between the views of health educators and those outside the profession who often think of it as information-giving and pedantic. Information is but one component of education, but by itself rarely completes an educational process. From within the discipline, health education is an interactive process with affective, social, cognitive, and situational dimensions.

Health education has long employed a wide variety of methods—primarily community organization, group processes, and mass communications. More recently certain behavior modification techniques (such as those used for changing food habits and in smoking cessation programs) and organizational change strategies are widely used (such as those aimed at improving teamwork among health professionals and redesigning clinic procedures so as to better meet client needs).

SOCIETAL VALUES

In the formulation of policies and programs directed at educational or other interventions in personal or social behavior the ethical questions include[6]

- To what extent is health-related behavior voluntary and, therefore, the responsibility of the individual?
- To what extent is societal intervention in an individual's behavior justified?
- To what extent are coercive interventions justified?

With an emerging interest in behavior as a causal factor in determining health status has come a tendency to focus on personal lifestyle and personal responsibility. At the extreme is the position that

> The next major advances in the health of the American people will result from the assumption of individual responsibility for one's own health.... The cost of sloth, gluttony, alcoholic overuse, reckless driving, sexual intemperance, and smoking is not a national, but an individual responsibility (*16*).

[6]For an excellent overview of ethical issues in health education and lifestyle interventions see Faden and Faden (*14*) and Simonds (*15*).

With the exception of the poor and the oppressed, whose problems are acknowledged to result from fundamental social structure, Knowles and others have regarded individual behavior as completely voluntary.

At the other extreme are those who take the position that health-related behavior is a response to the larger political–economic structures and policies, including racism and a market ethic (*17–19*).

Insistence that individuals are "responsible" for their own health may stem from confusion of two different phenomena—the relationship of an individual's health to his lifestyle and his being accountable for his lifestyle, which logically, therefore, would make him responsible for his health status. While the former may be undeniable, the latter is much more problematic. Wikler (*20*) noted that this could result "in a lessening of willingness to aid the person whose own behavior has resulted in illness." The victim-blaming fallacy in health policy[7] is evidenced when there is underemphasis of community organization, organization development, and education of policymakers and exclusive concentration on education of private individuals. In addition, recent health education studies have tended to emphasize individual behavior change because it is more susceptible to controlled evaluation than community organization efforts. Thus, significant issues for health education are related to who should be educated and for what ends. How much emphasis should be placed on individual education qua individuals and how much on bringing about structural change?

When is it ethically justified to intervene in individual behavior, and by what means? Traditionally, a major justification is the reduction or prevention of harm to others or of harm to the individual himself (*25*). The "harm-to-others" principle is the justification when community organizing leads to the use of coercive methods to change institutions (e.g., a hospital's admission policies related to its Hill–Burton obligation to make available a certain amount of free care) or structural relations (e.g., a State's policies with regard to appointments to the State health planning commission). The target institutions and policies are presumed harmful. The harm-to-others principle has been invoked recently with respect to behaviors previously thought to be purely self-harming because the soaring cost of illness is increasingly borne by society (*25–27*). As Pollard and Brennan put it:

> As awareness increases that individual A's lung cancer directly affects individual B's health insurance or tax burden, tolerance for the free exercise of health-compromising behavior, such as smoking, is likely to decline (*28*).

The harm-to-others principle is also being applied more broadly in the courts and among patient advocates and is encroaching upon the tradition of paternalism in the doctor–patient relationship. At issue is the withholding by doctors of relevant information, which affects the patient's ability to make informed decisions about treatments and other procedures and about preventive actions.

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[7]See Ryan (*21*) for a discussion of the concept of victim blaming and Galanter (*22*) on lead paint poisoning, Barry (*23*) on injury, and Hertz and Stamps (*24*) on health services utilization examples.

Paternalism or prevention of harm-to-self has been the subject of much greater dispute even when self-destruction is the ultimate goal such as in suicide cases. One major justification for intervening hinges on the degree to which a person is seen as being capable of making such choices on a rational basis. Interventions on behalf of children are often justified on the basis that children are considered to be incapable of making rational decisions and in some instances this includes older children. If, for example, a teenager is subjected to intense peer and media pressure to smoke and has in addition the model of parents who smoke, then it could be argued that the behavior is substantially nonvoluntary (*25*). Even in the case of very young children the paternalism of the State has been limited by the right of the parents to determine what is best for their children. Thus, only one State has so far enacted a law requiring child restraints for child passengers in automobiles.

One of the pitfalls of paternalism is exemplified by the case of physicians who create excess dependency, robbing patients of ability to protect themselves. Educational approaches alone may not be considered strong enough action when the harm is likely to be great. However, paternalism without education does not reinforce self-determination and may lead to rebellion and resistance.

SOURCES OF INFLUENCE ON HEALTH-RELATED BEHAVIOR

Natural Influences

The behavior that affects the health of an individual is not performed principally because of the individual's concern for health (*29*). Thus, there is evidence that influences on a child's behavior, which in turn influence health, extend well beyond those relating specifically to health (*30*). Exactly how this process unfolds is not well understood. What is known comes primarily from studies of children's attitudes, beliefs, and behavior at single points in time (*31–36*) and not from longitudinal studies over developmental sequences. Research on preventive health behavior in children and adolescents is richest for substance abuse (*37*) and sexual behavior (*38*). These works, however, do not provide a complete developmental perspective.

Maturation and learning during growth take place in a system of social relationships. This social environment includes the intimate environment, family and friends, the intermediate environment, neighborhood and school, and the extended environment including the massive economic, social, and political structures. The social environment is pervaded with meanings and values, and children learn to respond to their environment selectively and in patterns intimately associated with their social groupings. These patterns have considerable influence on adaptation, on health, and even on how health is defined.

Imitative or modeling processes are the prime vehicle for social learning, particularly for very young children (*39*). The individual is also

an active and influential participant in the socialization process. With increasing age children are better able to assimilate and use information and to fit their behavior to their own progressively refined and internalized conceptions of what is appropriate (*40*).

Chronological age is an indication of developmental susceptibility to different sources of influence (such as that of peers over parents), readiness for various kinds of learning, ability to distinguish between external reality and thought processes or others' descriptions of reality, and ability to make increasingly complex judgments and responsible decisions (*41, 42*).

Family

The primary health role of the parent is, of course, that of nourishing and protecting the infant from hazards and nurturing him or her in ways that will contribute to a concept of self and trust in the world. A little later certain health-related values, health orientations, and habits will begin to be established including hygienic practices, the taking of medicine and other treatments, tastes, and associations related to food, when to perceive of oneself as "sick" or "well" (*30, 34, 43*), concepts of cleanliness and safety, and concepts of what constitutes healthful living. Some important beliefs about vulnerability to health problems are set early and are relatively stable after the age of 13 or 14 (*44*). A study of child-initiated visits to the school nurse found that patterns of seeking medical care were based on those of the child's parents and were quite stable by age 12, and that the beliefs and behaviors usually did not vary regardless of the specific complaint (*43*).

Although the mechanisms are not clear, parental health habits are associated with later adolescent and adult behavior. For example, based on studies of the influence of adult modeling of aggressive behavior, Stokols (*45*, p. 37) concluded that parents who behave in a consistently competitive and aggressive manner may contribute significantly to the development of coronary-prone behavior in their children. Parental smoking patterns predict to some extent their children's smoking behavior in high school and junior high school (*46, 47*).

The predisposition to the use of marihuana among young people whose parents use alcohol excessively suggests a relationship between generational norms even though there is a variation in the mood-altering substances used. Another practical consequence of parental use of tobacco and alcohol is the greater accessibility of such materials for use by children.

Family characteristics such as the degree of parental warmth, control, and emotional attachment may affect the extent to which adolescents rebel and adopt anti-authority behaviors such as substance abuse, reckless driving, unprotected intercourse, and nonadherence to therapeutic regimens. Other research has shown that adolescents with strong family ties are protected against early pregnancy and that parent–child communication about sex was strongly associated with postponing sexual activity and with more effective contraceptive use (*48*). The proportion of regular smokers among teenagers is higher among those whose parents are not

present in the home than among those with both parents who smoke. Television is most influential when alternative sources of influence such as parents are weak or absent (*49*).

Each family or child-rearing group will have certain unique characteristics but, in large part, they reflect the culture and subgroup to which they belong. The parents' own childhood experience and current living conditions, certain of their peers, "experts" such as health professionals, indigenous practitioners, and "veteran" parents such as grandmothers, and the media are among the influences on the content and style of their parenting. Increasingly, however, the traditional socializing and support institutions and interpersonal networks are absent, and few substitutes exist (*50*).

Other Socializing Agents

The School

Outside the home the school environment probably influences children more than any other organized institution. For the first time the child is specifically evaluated and appraised in terms of intelligence and academic performance and also in terms of personal qualities, habits, and behaviors learned at home. Explicit health and safety knowledge are usually also imparted in school. The child may have his first contact with a health professional without his parents. Because school attendance and school work become a child's major responsibility and because illness can serve as an excuse for avoiding both, how parents and school staff respond to a child's reported illness and the need for care contributes to the formation of illness behavior. After about the sixth grade the influence of teachers and other adults in the schools gives way to the influence of peers.

In addition, schools have very different "cultures" (*51–53*), and this influences general academic and social orientation, discipline, and the development of social groups, all of which have a bearing on health-related behaviors. Schools often bring children from different backgrounds and age groups together who present examples of alternative behavior. In some secondary schools crime and disruptions and access to beer, wine, and marihuana are common (*54*).

Television

Today's child watches much more television than the child of 1960 or 1970. The average American child between the ages of 6 and 11 years views about 27 hours of television a week. For those between the ages of 2 and 5, the figure is 33½ hours (*55*). Television consumes more time of American children than the classroom (*56, 57*). About one-fifth of children's television is advertising, and in a single year the average child sees about 20,000 commercials (*58*). In addition, program content is controlled by interests that are sometimes at significant variance from those of the child and his or her well-being. Content is determined in principle by public demand as interpreted by the television industry. According to a recent Federal Communications Commission (FCC) Task

Force Report (*59*) broadcasters tend not to air educational or age-specific programs directed toward children. In fact, of the stations in the 52 markets examined by the FCC (1977–78) an average of 2.6 hours per week was devoted to such programing. In the case of the child audience, their less well-developed sense of taste makes them particularly vulnerable to unbalanced programing fare that is mostly desserts. In raising concerns about the negative influences of television it must also be kept in mind that some television programs (e.g., "Sesame Street") can have a demonstrably positive impact (*60, 61*).

There is convincing evidence from a series of investigations that media programing and advertising can have a significant impact on child behavior (*45, 62*). Researchers have found that children may imitate or pattern their behavior according to television character "models" even when they are not reinforced by family or friends (*63*). And if one "follows the money," the hundreds of millions of dollars—600 million in 1978—spent on commercial television advertising directed to children shows a degree of confidence that at least some behaviors can be influenced by this medium.

Older children are more resistant to the influence of the media because their developmental process and experience increase their ability to be discriminating (*64*), but young children below the age of 8 or 9 are by their psychological makeup especially vulnerable to certain television advertising techniques. According to the Research Director of the Children's Television Workshop:

> By virtue of their lack of perceptual and intellectual, social and emotional maturity [young children]... are also innocent as to the guiles of others, and therein easily gullible.... They are rendered still more gullible by their frequent failure to distinguish fantasy from reality.... [E]xaggerated claims and distortions as to the qualities of products are taken as the truth. Their highly limited ability to project themselves psychologically into the perspective of others, and their limited experience at bartering, make them innocent of the need to discount a seller's claims (*64*).

Of particular concern for health is the impact of children's food advertising where the bulk of the money is spent. Young children are often successfully influenced to pressure their parents for well-advertised brands (*64*). Such pressure apparently does lead to the buying of such products, and parents who successfully resist such pressure are sensitive to the strain television advertising adds to their relationships with their children even though it may be mild and short lived (*64*).

Other concerns regarding the influence of television on children include over-the-counter drug use (*65*), aggressive behavior (*66, 67*), and smoking. Aggressive behavior has been linked conclusively to television (*45, 68*). It has been suggested that attention should be turned not only to violent behavior but also to aggressive responses and consequences for socially acceptable but coronary-prone behavior (*45*).

In addition to the influences of television messages on children, the actual time spent watching television limits possible other uses of time. Sleeping (*62*), exercising, spending time with family members, doing school work, reading, working puzzles, and experiencing real relation-

ships, including solitude, are among the opportunity costs of excessive television viewing. While it can be argued that some television enriches the lives of children, the negative impact appears to be significant and deserving of further documentation.[8]

Peers

American children are spending increasing amounts of time solely in the company of their age-mates. Studies have shown that at every age and grade level, children today show a greater dependency on their peers than they did a decade ago and that there had been a steady decline in parent–child interaction over the preceding three decades (*50*).

In adolescence, peer influence grows in importance (*69–71*). There is evidence that in adolescent peer groups the habits of the dominant members may be rapidly and almost unconsciously adopted (*37*). Concurrent with the growth of peer influence is a shift in priorities or motives. Whereas health is a stronger motive than appearance among younger children (8–10 years old), among older children appearance is more important than health (*44*, p. 43), and health-compromising behavior and risk taking occur in combination with other characteristics of normal development (*72*).

One study of junior high school students found the prevailing peer model to be the single most important variable contributing to the onset of smoking in this age group and parental influence the second most important (*47*). Students cite "conformity" as their main reason for starting to smoke (*7*), and the strongest influence seems to come from "best friends" rather than from group pressure (*6*). Social groupings tend to be fairly distinct and often are divergent in behavior patterns (*5, 52*). In the case of alcohol and drug abuse

> [H]eavy use of these and other substances tends to be concentrated among those least engaged in adult-sanctioned activities . . . [I]t is also related to the way in which deviance can create an alternative culture in which excessive drug use becomes a way of eliciting esteem from peers just as sports or academic achievement provide social rewards for individuals capable of excelling in those pursuits (*5*).

Two issues deserving of more attention are (1) the role of peers in maintaining or encouraging healthy behavior and (2) the role of other relationships and commitments and self-esteem and assertiveness in counterbalancing peer influence. For example, it has been found that susceptibility to peer group influence is greater among children from homes in which one or both parents are frequently absent (*50*).

Social–Structural Influences

Socioeconomic status and the spectrum of political–economic organizations all play a role in child and adolescent behavior. Each social and

[8]Studies of how families of different ethnic groups, income and education levels, and geographic regions use television and how this affects television's influence on children are just beginning under the sponsorship of the Division of Education Technology, Department of Education.

economic class has its own particular set of customs, and membership in a class may leave its mark on the individual independent of its indirect influence via the family (*73, 74*). This seems to be the case at the onset and establishment of many forms of drug abuse (*5*) and illness behavior (*30*). There is speculation about the exact causes of these relationships:

> These relationships can be understood through a variety of processes, some of which ascribe a primary causal role to economic deprivation. Few would argue with the notion that lack of opportunity coupled with exposure to others who attain social rewards creates anger and frustration. If the person perceives himself to be responsible for the lack of opportunity, self-esteem may also be damaged . . . [and] anxiety and low self-esteem seem to increase the likelihood that a person will use mood-regulating substances. Economic deprivation is often associated with hostile urban environments, which may lead physically vulnerable young people to adopt habits like smoking to signify their 'toughness.' But it is simplistic to assume that the relationship between socioeconomic status and tobacco, alcohol, and other drug abuse means that in all cases status has a primary causal role (*5*).

A host of organizations may affect "directly the options available to people and/or their awareness of these options and/or ease with which they make daily, habitual selections" (*75*). Federal policies affect safety restraints in automobiles, which businesses or crops will be subsidized, tax incentives related to advertising, restrictions of the media or on the sale of certain products, and business decisions about which products to develop and/or market and which to "bury." State drinking laws and differences in such laws among neighboring jurisdictions influence the incidence of drunk driving and the availability of alcohol for young people (*3*). Finally, there is the unnatural and delayed entry into adult life and lack of meaningful activity for adolescents that are characteristic of the social structure in the United States today. The decisions and policies of numerous organizations influence the formation and maintenance of an individual's health-related behavior:

- Product manufacture and marketing decisions
- Service coverage decisions by third-party payers
- Organization of services and accessibility to special groups such as adolescents
- Service priorities of health care institutions and health care programs
- Health professional training orientation
- Safety regulations and enforcement
- Motor vehicle and water-safety education availability
- Enactment of policies affecting family structure
- Financial support for schools
- School curricula policies and school climate, the sum of disciplinary, homework, and other policies in schools
- Safety device and contraceptive availability
- Juvenile justice systems
- Employment opportunities and patterns
- Recreation alternatives

- Programing decisions by broadcast media
- Federal policies in support of specific U.S. agricultural products, including sugar import taxes and tobacco subsidies
- Child care policies of employers and Government

Summary

- Health-related behavior is formed through a complex set of influences: parents and other family members; age peers; socializing institutions such as schools and churches; television; the subcultural environment and the relationship of that group to the dominant culture; and larger economic and political forces in the extended environment. The extent of each of these influences depends largely on the age of the child.
- Family influence is greatest for the young child, with television and the school closely following. By early adolescence age peers are a dominant source of influence.
- Situational factors, e.g., the availability of substances for experimentation, amount and quality of adult supervision, availability of acceptable and accessible activities or behavioral paths conducive to health, modify other influences.
- Behaviors are functional, are often interrelated, and have meaning for the person that is not inherent in the behavior and may not be related to health, even though the behavior has a health consequence. The meanings are learned through social experience. That experience is patterned because it reflects the norms, values, sanctions, and resources to which the developing individual has been exposed.
- Certain important beliefs, such as personal vulnerability to health problems, are formed relatively early—at least by age 14—and they tend to be interrelated in a system of beliefs, that is, a youngster who has a high expectation of encountering specific health problems has a relatively high expectation of encountering others.

Implications for Policy and Programs

- Child and adolescent health behaviors should be considered in relation to multiple influences including the extended environment.
- An understanding of the meaning and function of a behavior or behaviors is crucial in designing appropriate interventions.
- The sources of influences on children and youths should be considered and incorporated into programs or countered where they are not suitable according to their varying degrees of influence at the various developmental stages of children's lives.
- The stage of cognitive, emotional, and biological development of the person must be taken into account in setting the goals and choosing the messages and methods of a program.
- Analytical and decisionmaking skills among young people should

be promoted and encouraged in order to increase their resistance to harmful influences.

- Comprehensive programs that deal with belief and behavioral systems are more likely to be effective than those that are categorical or compartmentalized.

Planned Influences

In developing causal models for disease, the notion of a simple and sovereign cause was abandoned long ago, but it persists in programs directed at health-related behavior. Programs commonly address only one set of factors and very often a major factor is "motivation" because clients or constituent populations who do not behave in desirable ways are frequently assumed to be unmotivated rather than lacking the means for acting on their motivation or lacking support for actions they do take (*76, 77*). Not surprisingly, such motivation-oriented programs tend to have high rates of failure.

There are altogether too many examples of programs that do not reflect past experience that has been studied and evaluated. Simmons cautioned against the pitfalls of the current enthusiasm for health education:

> The potential of large sums of money being made available could foster a great deal of inappropriate action taken in the guise of 'education.' My fears are aroused because past history has been replete with simplistic approaches to very complex educational problems. Millions of dollars have been spent on program efforts and activities which have been labeled health education when they have embodied no behavioral science concepts nor health education principles in their planning, implementation, or assessment of results (*78*).

For example, a widely cited child accident prevention program that did not significantly reduce such accidents failed to take into consideration the causes of the parental behavior (*79*).

Programs with greater likelihood of success have traditionally included an intensive community "sounding" process in which the perceptions of the groups to be served are elicited in order to learn what constitutes barriers to a particular behavior (*80*). Three categories of factors have been identified based on a model of health services utilization behavior (*81*) according to the type of influence they tend to exert on behavior (*82, 83*).

- *Predisposing factors* include knowledge and sources of health information, attitudes, beliefs, and norms and other social and structural influences including feelings of isolation and powerlessness, which are related to motivation among individuals or groups.
- *Enabling factors* are the resources and skills needed to act on one's motivation or intention. Classic examples are access to health care facilities when needed; skills that improve a woman's ability to handle childbirth with less stress and pain, and to quit smoking or using drugs during pregnancy; and child rearing or parenting skills.

- *Reinforcing factors* encourage or discourage health promoting behavior. Ridicule of a diabetic child's regimen may cause defaulting and serious consequences; a supportive nurse or aid may encourage a new mother to breast feed despite a setback; a patient advocate on a health planning board may help someone disagree with health professionals of higher status and power.

These categories are useful in assessing the causes of a behavior. For example, each of the behaviors associated with low-birth-weight/preterm infants (see table 1) should be submitted to a separate analysis such as that shown in the outline of "Factors Influencing Nutrition Behavior During Pregnancy." Another analysis might be made of physicians' ability to

Factors Influencing Nutrition Behavior During Pregnancy

I. *Predisposing Factors*

Knowledge
- That one is pregnant
- Nutrient needs during pregnancy
- Food sources of specific nutrients
- Effects on the fetus of maternal nutrition
- How to prepare foods to preserve nutrients

Attitudes
- Self-confidence
- Self-esteem
- Desire to improve nutritional practices if deficits are identified

Values
- Cultural nutrition practices during pregnancy
- Family nutrition practices during pregnancy

Perceptions
- Belief in vulnerability of self and/or fetus to a poor outcome
- Belief in seriousness of a poor outcome
- Belief in efficacy of recommended nutrients in avoiding a poor outcome

II. *Enabling Factors*

- Access to prenatal care and adequate nutrition counseling
- Ability to obtain and pay for food
- Availability of food supplement programs, if needed
- Skills in cooking and preparing food
- Living situation that allows choices regarding food purchase and preparation

III. *Reinforcing Factors*

- Support of food choices by family and friends
- Culturally and individually acceptable recommendations and support from health care providers, WIC counselors, etc.
- Assistance from health care providers in obtaining food, if needed
- Absence of heavily advertised or inappropriately available products, such as starch, which compete with important nutrients

promote adequate nutrition among pregnant patients. Factors would include the degree of physician knowledge of nutrition, ability to identify deficiencies, ability to review patient routine diet in a nonjudgmental fashion, and physician belief that maternal nutrition influences fetal outcome.

Analyses such as that shown for maternal nutrition highlight the need for combinations of methods of intervention. It is obvious that to be effective the development of motivation must be accompanied by the provision of resources and support systems for followup. In addition, because many of the preferred or ideal actions are repeated or are continuous over long periods of time, reinforcing factors increase in importance. If a parent participates for the first time in a screening program for a high-risk child and followup screening is important, it is necessary that the first experience be positive and encourage that parent to return.

Dimensions of Behavior

Another aspect of the behavioral "diagnosis" process is the characteristics of the target behaviors, some of which are frequency, persistence, timeliness, quality, and range. Table 2 presents each of these with examples and a listing of the most effective methods for influencing that category of behavior.

Characteristics of Effective Programs

Several other principles for planning effective health education programs are by now axiomatic. However, many programs still do not take them into consideration. These are

- *Participation.* The early participation of both consumers and providers in identifying problems, assessing their causes, and anticipating obstacles to improvement will increase the probability that the health education program will have relevant and realistic goals, employ acceptable methods, and reach its goal.
- *Appropriate level of intensity and duration of program.* If the program does not reach the required minimum or "threshold" level of effort, not only will the investment be wasted, but failure may make subsequent attempts even more difficult. Likewise, there may be a point of diminishing returns as when, for example, home visits are continued beyond the time when they are effective (*85*) or when excessive consumer participation is required such as when a group series has too many sessions and a high dropout rate results (*8*, p. 26).
- *Integration.* Education programs are stronger when they are integrated into larger program systems, because it is more likely that enabling and reinforcing components will exist and be accessible and that there will be overall consistency of message.

TABLE 2. Most Effective Educational Methods by Dimensions of Goal Behavior*

Dimension	Goal	Examples	Most Effective Methods
1. Frequency	Periodic recurrence	Well-child or prenatal visits, dental checkups, and immunizations	Telephone or mail reminders
2. Persistence	Continuation over a long period of time	Chronic illness regimens, weight loss	Building social support in clinic and home environments
3. Timeliness	Delay in seeking medical treatment or in adopting a preventive practice	Entry into prenatal care, venereal disease treatment, contraception clinics	Triggering earlier entry into medical care among already motivated persons by mass media. For others, family or peer support and/or relationship with a health care worker is needed, e.g., outreach worker
4. Quality	Appropriateness of health actions	When consumer must choose between alternative products, sources of care, or types of response to symptoms	Prior experience with product or source of care is important and, therefore, reinforcing factors should be strengthened; community organization or organization development to improve availability or accessibility of products or services Mass communication, including product labeling, and counteradvertising can increase awareness, arouse interest, and direct choices of those already motivated to take action
5. Range	Adoption of a complex series of health actions	Medical regimens, care of disabled children, including home physical therapy	More intensive methods such as individualized counseling, home visits, and reinforcement of graduated steps.

*Based on Green (*84*).

Summary

Effective educational programs (1) are based on a systematic assessment of the causes of behavior that contribute to the health problems in question, including the real or perceived limitations in options or opportunities for acting in health-enhancing ways; (2) coordinate educational methods designed to address a balance of predisposing, enabling, and reinforcing factors; (3) include procedures ensuring that the group(s) to be affected by the program participate in planning it; (4) provide the minimum level of program effort needed for effectiveness; and (5) emphasize informed decisionmaking over behavioral prescription.

APPROPRIATE AND EFFECTIVE CHANNELS FOR INFLUENCING HEALTH-RELATED BEHAVIOR

Health care facilities, schools, mass media, and the community are important settings for health education individually and in combination. In fact, it is difficult to achieve an adequate level of enabling, reinforcing, and predisposing influences within a single setting. School-based programs ideally need the cooperation of parents and other community forces and, likewise, it is easier for parents to achieve their goals for their children's health behaviors when the school and media are playing active and positive roles. A synergistic effect often results from coordinated or at least parallel efforts by several of the channels, because social norms begin to facilitate and reinforce individuals and make it less difficult than acting alone or counter to one's social milieu and because enabling factors will usually receive attention and action.

Table 3 provides two examples of health goals addressed through these channels to illustrate the complementarity of various efforts.

Health Care Settings

Health care delivery settings are obvious channels for initiating health education and responding to expressions of interest on the part of children and parents. Although these channels are not universally accessible and remains episodic and crisis-oriented for some populations, they are nonetheless highly important means of reaching many pregnant women and young children and some adolescents, including a substantial number at high risk. In contacts with health care workers and other patients there would appear to be many times when interest and receptivity to communication about health matters is high. These are also underutilized channels, because of professional orientation and training; incentives, including financial incentives; and the organizational structures in which a large proportion of health care is provided.

Many people want and place high value on health information from health care providers (*86, 87*), particularly doctors (*88*), and, although lay networks and certain other types of expertise such as that resulting from experience sometimes compete with the advice of professionals, health

TABLE 3. Examples of Educational Strategies to Improve the Health of Mothers, Children, and Youths

Goal/Behaviors	Settings			
	Clinical	Community	School	Media/Market
Improve pregnancy outcomes				
Entry into prenatal care, smoking, alcohol and drug use, including over-the-counter drugs, exposure to x-rays, and occupational hazards	Specific counseling for infertility patients and other women planning a pregnancy, for women with positive pregnancy tests planning to continue the pregnancy (e.g., in family planning clinics), or during regular prenatal care	Inclusion in childbirth education classes, education through other organizations that reach young women to increase general awareness	Inclusion in curricula	Warning labels on products harmful to pregnant women; general awareness campaign through multimedia
Family planning (especially adolescents)	Outreach to high-risk groups; anticipatory counseling by primary care provider	Education for parents to discuss sexuality and family planning with children; counseling and discussion groups through youth-serving organizations, including those for boys	Inclusion in curricula, including support for abstinence	Radio to reach teenagers
Decrease childhood accidents and poisonings	Advice to parents about car restraints and other safety measures as indicated developmentally	Swimming classes, water safety instruction		Universal warning sign for hazardous substances and publicity; safety campaigns such as that by American Academy of Pediatrics using local pediatricians trained as speakers
		Car seat loan programs		
		Mail campaigns, e.g., National Safety Council Child Safety Club		
		Babysitting training programs		

care providers would seem to be in an unusually favorable position to offer health education to their patients. In fact, many health professionals are beginning to appreciate the extent to which the behavior of their clients influences their health status and to want them to know and do more to maintain and improve their health.

Despite increasing recognition of the role of consumer behavior in the success of therapeutic regimens, early detection and diagnosis, and regular primary prevention services such as immunization and contraception and despite increasing educational activity by health care institutions and providers, education and counseling services are often inadequate, particularly for high-risk populations. For example, only a small percentage of pediatricians routinely recommend car restraints for children (*89*).

One-to-one counseling is by far the most common health education method used in clinical settings (*90*), yet actual application is often limited, of poor quality, and lacking in coordination. Other methods that may be equally or more effective are used infrequently. For example, group discussion has long been recognized as a powerful educational tool in medical care settings and with a wide variety of groups, including parents of children with rheumatic fever, asthma, and leukemia, mothers in child health conferences, and children with diabetes (*8*, pp. 29–30). However, use of group discussion tends to be low even in the many settings having large enough numbers of persons with common interests or health problems to be able to schedule them for group appointments and having qualified personnel who could serve as discussion leaders.

In addition to scheduling patients for group visits, rearrangement of the traditional appointment sequence can be highly effective. The "exit interview" with a nurse or trained layperson used widely in planned parenthood clinics to clarify and reinforce medical recommendations is highly effective in improving adherence to complex instructions (*82*). Written and other audiovisual materials are often underutilized or improperly utilized (*91*). Such aides can be effective in conveying information and for clarifying and reinforcing personal communications, and much creative work has been done, such as a workbook for asthmatic children, *Teaching My Parents about Asthma* (*92*) and storybooks to prepare children for hospitalization. Other tools include telephone-access libraries of recorded messages, audio cassettes in a variety of languages according to client needs, and areawide cable television programing for hospital patients (*91*).

Health Education Services of Demonstrated Effectiveness

A wide range of health education services contributes to optimal consumer behavior.[9]

- *Outreach to consumers.* Evaluations of EPSDT programs have demonstrated the dramatic differences in numbers of clients, with and without outreach (*99*, pp. 13–15). Recruitment of new clients

[9]See also Skipper and Leonard (*93*); Somers (*94*); President's Committee on Health Education (*95*); Redman (*96*); Green (*84*); Mathews, et al. (*97*); and Deeds, et al. (*98*).

to appropriate programs such as contraception clinics for adolescents beginning sexual activity (*100*), followup with consumers via telephone or postcard reminders of return appointments (*101*), and home visits to assess environmental factors and enlist family support for therapeutic regimens (*82*, pp. 208–210) have been demonstrated to be effective outreach measures.

- *Consumer education combined with organizational change to achieve optional utilization of services.* Yale's School of Medicine initiated a family health care program that included nurse counseling and other health education, health maintenance, and employment assistance and that resulted in significant and positive changes in utilization of services (*102*). In yet another instance, in a large Health Maintenance Organization (HMO), orientation programs for consumers combined with training for health care providers and changes in service procedures resulted in more effective utilization of telephone services and routine examinations (*103*).

  Changes in procedures such as substituting an individual appointment system for a block or drop-in system, clarifying procedures so that staff are able to give adequate and correct explanations to patients, developing methods for keeping track of vital information, and establishing routines for encouraging preventive counseling have resulted in fewer broken appointments, increased responsibility of patients for their own care, and reduction in the number of unnecessary visits or medically inappropriate visits (notably to the emergency room) (*104*). In addition, measures to improve and maintain staff and employee morale seem to have a positive impact on staff–client relations (*105–107*).
- *Consumer education to improve member management of common minor ailments.* At the Columbia Medical Plan, parents are trained to obtain throat cultures from their children with the objective of identifying group A, beta-hemolytic streptococcal throat infections promptly. A study revealed equal competency between practitioner and parent, no underutilization or overutilization, and decreased contagion in siblings (*108*).

  Educating parents about first aid and home treatment for minor childhood ailments has led to increased satisfaction by both parents and providers and decreased utilization of services (*109*). Telephone consultation has the potential for self-care education as well as reassurance (*110*), and is one of the resources that is less available to poor parents than to middle class parents (table 78, volume III of this report). When patients or parents are able to telephone health care facilities for advice before (and sometimes instead of) coming to the facility, fewer use unnecessary medical services (*111, 112*) and more get care earlier.
- *Consumer education in primary prevention including anticipatory guidance for behavioral and maturational adjustments.* One hospital post partum program that included discussion of family

planning 2–3 days after delivery and a brief followup visit the next day resulted in a significant increase in contraception usage (*113*). A counseling program for women having abortions also resulted in significantly increased contraceptive use (*114*). Parent education programs on the use of car seats for infants have been moderately successful (*115, 116*). The emphasis on primary prevention education in the Panel's recommended periodic health services for well populations underscores the importance of such services.

- *Supportive services before and during stressful medical and hospital procedures.* Parents and children given a combination of systematic preparation, rehearsal, and supportive care prior to each stressful procedure were significantly less upset and more cooperative than a control group (*117*), and a number of other studies have shown similar results (*93*).
- *Education to improve decisions with regard to medical procedures and therapeutic regimens.* Many factors are associated with adherence to a regimen (*118*), but a number of evaluations of educational programs for parents and for parents and children suggest that adherence can be influenced positively. For example, at Roosevelt Hospital in New York an education program for parents of children with asthma was effective in reducing emergency facility utilization (*119*). In a clinical trial of vaccine for swine influenza "children . . . (aged 6–9 years could) be *involved* meaningfully . . . in decisions related to informed consent, while the final decision may be made by an adult" (*120*). "The question and answer period demonstrated that children . . . functioned in a group fairly adequately as a human subjects review committee."
- *Education for governance.* Mandated consumer participation in decisionmaking bodies has resulted in both superficial compliance and adaptation by health service agencies (*121, 122*) and meaningful integration of lay and professional decisionmaking and policy development (*122*). While not all situations are responsive to educational approaches, training and other strategies can increase the effectiveness of consumer participation (*123, 124*).

Implementation

If counseling and education are to accompany prenatal care; if guidance about child development, parenting, safety, and home care is to be included in infant and child care; if counseling about risks and anticipated developmental challenges is to accompany periodic examinations; and if education for disease management, including family support is to be a part of care for all children, adolescents, and pregnant women with chronic or acute conditions, then certain features of the organization of services, funding, accountability, and professional training must be considered.

Organization of Services[10]

Certain attributes of health care services facilitate optimal consumer behavior and make it more likely that the full range of educational services is offered. When, for example, 43 percent of physician office visits by children and youths under 15 years of age for medical or special examinations and 66 percent of the visits for bronchitis, emphysema, or asthma are 10 minutes or less (table 84, volume III of this report), then counseling is severely constrained. Among the 25 percent of a high-risk population that do not have a regular doctor at their usual place of care the basis for a relationship is missing.

Several organizational attributes are noted here to emphasize their effect on health behavior.

- Comprehensive, integrated provision of primary care increases the capacity for delivering coordinated health education programs via appropriate staff, effective and efficient methods, and with needed adjustments in organizational procedures.
- Intraorganizational and interorganizational arrangements that facilitate continuity of providers and of followup increase client motivation and ability to carry out medical recommendations.
- Removal of barriers to access, including increasing telephone access, enactment of minors' consent statutes, and pluralism in types of organizations (e.g., special family planning clinics and family planning services offered in primary care contexts) increases the use of preventive services.
- Participation of clients in development of health care institution policies, in deciding on the directions of specific programs, and in individual encounters increases the likelihood that the services will be acceptable and suited to the needs of consumers, and that part of the responsibility for care and followthrough is assumed by consumers.
- Accountability for the health status of a specified population, whether defined by geographic area or enrollment, increases the likelihood that providers will be more aggressive in outreach and followup and will consider consumer behavior to a greater extent.

Funding

Health education services require specialized professional training and utilize scarce staff time and, therefore, should be reimbursed or otherwise funded. Federal efforts to develop mechanisms to pay for health education in grant programs should be encouraged. Specialized educational programs in any setting where their effectiveness has been proven should be reimbursable through third-party payment systems.

Clinical settings over which there is considerable governmental control are logical settings for emphasizing educational services because prerequi-

[10]For a discussion of the effects on care of the organization and structure of health care settings see Dutton in this volume.

sites for funding can include the requirement that health education services be provided and the clients are at high risk. Because a larger range of disciplines can participate and because it is often possible to assign responsibility for overall coordination to a trained individual, it is easier to fund such services within existing facilities, and there are more incentives for emphasizing consumer behavior. (For a discussion of educational programs for mothers and children in organized settings, see Lefkowitz and Andrulis in this volume).

Special funding may be needed if health education is to be a required rather than an optional service for Bureau of Community Health Services primary care grantees. Securing this funding through a preventive service "module" or budget line rather than simply increasing funding would be desirable because it would protect the extra funds from pressures to use them for medical services and leave open the possibility of channeling the funding to center consortia in cases where the individual centers are not large enough to provide the most efficient types of services. The maximum incremental cost for providing every Community and Migrant Health Center user with needed health and nutrition education services is estimated to be $7.34 per client per year with a total cost of $41.8 million in 1981 dollars for all users in all centers (updated from DHEW Task Force on Prevention estimate, *10*, p. 32).[11]

Of the nearly 1.6 million adolescents served by family planning projects (Title X), a large proportion are estimated to have no other regular or continuous contact with health care services. Formal recognition of the larger health promotion/disease prevention role these clinical services can play, and in a number of instances already are playing, is expected to be reflected strongly in the 1980 Project Guidelines.

In order to utilize these organized settings to their fullest potential, additional staff may be needed at least on a consultation or regionalized sharing basis. Health educators or persons with appropriate experience and training should occupy an increased number of positions with the National Health Service Corps. The current number is negligible, and several regional offices (e.g., Region III) have been requesting such NHSC personnel for a number of years in response to clinic demand.

Health maintenance organizations are required by legislation to provide a wide range of services, including nutrition education and counseling, health education services, and education in the appropriate use of health services and in personal health care (Title XIII of the Public Health Service Act). Even without monitoring there are a number of good programs related to maternal and child health, although adolescent programs are rare.

The principle of reimbursing for patient health education services provided to inpatients is becoming increasingly accepted. In fact, hospitals can fund such services that are "integral to patient care" as a part of their overhead. Half of hospitals responding to a survey conducted in 1978

[11]The entire preventive services package should include preventive health screening and protective services, preventive dental services, medical social services, and environmental services.

reported having a department or unit to coordinate educational services (*90*).[12]

Funding patient health education services as a component of ambulatory care is much more problematic. A large part of ambulatory care is paid out-of-pocket by individual consumers who do not necessarily see education as a high priority service. Many counseling and education services must be hidden with "creative accounting" for the sake of third party reimbursement. As a question of policy, however, the definition of services and implementing initial steps leading to eventual reimbursement would seem to be a wiser course of action. Governmental and private activities toward this end have begun. Criteria for inclusion of health education in the schedule of health care service benefits under Medicaid have been proposed in several States (e.g., California Conference of Local Health Officers, *128*). Several local Blue Cross plans are experimenting with special reimbursement for outpatient education services for selected chronic diseases. A commercial insurers group has been deliberating on reimbursing such services, and their investigation has also included incentives for their policyholders to obtain preventive services and to develop healthy behavior. The last is severely hampered by the fact that private health insurance is usually purchased by groups rather than by individuals.[13] Problems of defining services and eligible providers and effective monitoring militate against a recommendation that education and counseling be reimbursed across the board. A more prudent course is sponsorship of demonstration programs by the Health Care Financing Administration for a defined set of counseling services such as those for prenatal and infant care. The demonstrations should allow for the provision of these services by personnel other than physicians in patients/parents teaching and discussion groups; capitation should be one option, and outcomes should be measured as well as costs.

Quality Assurance

Health care workers are not yet accountable for their educational function, either through quality assurance mechanisms or in the eyes of their clients. For example, a practitioner may not even know the proportion of his or her patients who adhere to their prescribed regimens (*118*), much less accept any of the responsibility for nonadherence. The use of outcomes as a measure of quality would shift the focus to patient adherence to regimens and to educational services and would give health care providers responsibilities beyond diagnosis and prescription. Although there are problems associated with outcome assessments, including decisions about what to measure and at which points in time to measure it, increased emphasis on outcomes as related to process is essential.

[12]Supporting statements for reimbursement for inpatient education are found in documents from the Blue Cross Association (*125*), the Health Insurance Association of America (*126*), and the American Hospital Association (*127*).

[13]Personal conversation with Robert Johnson, 22 July 1980.

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As noted elsewhere in this paper, client participation in the development of institutional policies and programs and periodic client surveys are other important modes of quality assurance. These often provide a necessary basis for improved client–provider relationships.

Training

Increased emphasis on patient/parent behavior requires a reorientation of professional training. Much has been written about the deficiencies of health professional–patient communication, particularly with respect to disadvantaged groups (*93, 129–131*). Likewise, the effects of good communication have been documented (*132, 133*). Improved outcomes are most likely when health professionals' attitudes and expectations support the patient's motivation and abilities to contribute to the treatment process and reinforce this contribution; when the management of the illness is conducted jointly, and patient decisionmaking and self-treatment are actively encouraged; and when the medical resources provided are useful to the patient and can be put into practice by the patient (*120, 134–141*).

One solution is to make greater use of nonphysician personnel. For reasons of motivation, training, effectiveness, and cost, midlevel practitioners, nurses, pharmacists, and other health workers may often be better choices for the provision of certain types of individual counseling, group discussions, and skills development services. In addition to health professionals, trained laypersons with similar experiences or problems in common can contribute the education of clients in medical care settings (*142*). Willingness on the part of physicians to delegate a part of their educational role is crucial. Many other disciplines are already improving their preparation as patient/parent educators. Nurses have traditionally claimed this role and are improving their training to better fill it (*143, 144*).

The professional training and socialization of physicians is important in and of itself and also as a model for other health care professions. Two major alternatives for trainers exist: (1) identifying the characteristics of "ideal" pediatricians, family practice physicians, and other primary care clinicians and ensuring that applicants admitted to training programs possess them, and (2) planning curricula to impart such characteristics to all trainees. The admissions policies of medical schools should be altered to increase the numbers of students with broader social backgrounds and to give higher priority to applicants who have specialized in the behavioral sciences and to those with experience in interpersonal skills and sensitivity to other lifestyles and cultures.

Training in family practice, pediatrics, and internal medicine now includes some courses in communication and the behavioral sciences, home visits, and assignments in community agencies (*145–147*). Current Federal guidelines for family medicine and general pediatrics programs require training in "ambulatory care; psychosocial skills; and topics and related nonclinical areas relevant to the practitioner of family medicine" (*148*, p. 14 and *149*, p. 19). Controlled evaluations such as one conducted on a tutorial program for medical residents to improve their educational

skills with their inner-city hypertensive patients are needed to improve the direction for these efforts and to establish their effects. The tutorials resulted in increased educational efforts on the part of the residents, increased adherence to regimens on the part of the patients, and significantly increased blood pressure control (*150*).

Summary

Despite its acknowledged potential and despite increasing adoption by health care institutions and providers, health education is still too rarely planned and too rarely done well in such settings. The range of methods widely employed is narrow and inefficient; the importance of consumer behavior to the success of a therapeutic regimen, to early detection and diagnosis, and to primary prevention receives scant attention.

If the medical care channel is to contribute more actively to the health of its clients, several factors must be addressed: the organization of services, funding, provider accountability, and provider selection and training. Among possible options are

- Increasing grant and National Health Service Corps staff support for comprehensive primary care programs
- Adding a prevention and health education budget line and guidance for Community Health Centers and Migrant Health Centers as recommended by the DHEW Task Force on Prevention in 1978
- Adding funding and guidance for educational components of maternal and child health, children and youth, and adolescent pregnancy programs and recommending stricter monitoring of outreach services
- Initiating demonstration projects for Medicaid reimbursement of prenatal and infant care services, including education. The demonstrations should allow for the provision of these services by nonphysician personnel in patients/parent teaching and discussion groups, and they should measure outcomes as well as costs
- Encouraging such funding experiments by private insurers
- Continuing to fund recipient–consumer advocacy groups for monitoring and representing the interests of their constituencies in the development of policies and regulations
- Continuing to require training in patient education and school health as part of family practice and other federally supported residency programs and conducting evaluations of selected residency and other clinical training for the teaching of patient education to health professionals
- Developing and funding continuing education programs in health education methods for National Health Service Corps personnel

School Settings

Approximately 55 million children from 5 to 18 years of age or 95 percent of all children in the United States are in elementary or secondary

schools. An additional 400,000 poor, preschool children are enrolled in Head Start programs. With their long-term, continuous contact with well children, the schools are logical places in which to influence health and health behavior positively. Indeed, the concept of health education in the public schools has strong and widespread support among professional and voluntary health and education organizations. The American Academy of Pediatrics, the American Dental Association, the American Heart Association, the American Lung Association, the American Medical Association, the National PTA, and the American Association of School Administrators have policy statements supporting school health education.

Health education has been a regular part of school life for many years. Earlier in the history of U.S. education, health was considered one of the basic subjects. As long ago as 1911, for example, representatives of the American Medical Association met with the National Education Association to consider the best methods of improving and maintaining the health of pupils in the public schools. School health including education did not receive the attention it deserves at the Federal level during the 1960's and early 1970's when Federal involvement in education increased dramatically and, until recently, health instruction was done by teachers not prepared in that subject area and usually emphasized cleanliness, "good grooming," and the names of the parts of the body, and overstated sometimes inaccurately the consequences of "bad habits." To date only 18 States require comprehensive health education in grades K–12 (table 45, volume III of this report).

Today those responsible for health education are employing more sophisticated approaches and objectives. Important advances are being made, such as a series of studies that show a significant impact on the numbers of adolescents who begin to smoke (*151, 152*). There is increasing support for implementing the concepts of the landmark School Health Education Study (*153*), which was framed around the fundamental concepts of growing and developing, decisionmaking, and social interaction. In contrast to somber attempts to impress upon students the risks associated with smoking or other behaviors, these approaches share an emphasis on resisting media and peer pressure about smoking and on the positive benefits to health.

School health promotion can take many forms: formal classroom education, supervised field experiences, peer education, education as part of the delivery of health services, physical education activities, and teaching in conjunction with food services. Even though many schools and school systems are overburdened and imbued with a back-to-basics philosophy, many national parent, educator, and health professional groups have urged that all schools take action to strengthen health and safety education.

Components of Health Promotion in the School

School Climate

Schools have an "infracurriculum" in addition to the avowed formal curriculum, that is, the attitudes and values schools convey to their pupils

(and to their teachers, parents, and the community) by the way they actually treat them (*154*).

> If a school takes personal relationships seriously and not only discusses them within the curriculum but works to achieve good relationships between staff and pupils, then there is some chance that young people will take these seriously in their working lives.... If a school takes the trouble to make all pupils feel they matter and have a unique contribution to make to the community, it is lessening the chances that they will endanger their own health or that of others by indulging in [risky] practices which make them feel more adult. Self-esteem is a very important factor in regulating basic human drives and appetites (*53*).

With regard to sex education, implicit messages conveyed in the manner in which teachers handle sexual incidents (e.g., kissing, swearing, and looking at girls' underwear) affect the attitudes that the students develop toward discussing sexuality. The effects of the traditional disciplinary approaches to the control of smoking in the school setting have not been systematically explored, but it appears that at best they are ineffective and may even contribute to continuation of cigarette smoking in some students (*6*). Other studies (*72*, pp. 45–48) and teachers, school administrators, and others who work with youths have concluded that schools can exert a "protective influence" on students who are at high risk for delinquency and other problem behaviors such as drug abuse.

Classroom Instruction

In their enthusiasm to find solutions to existing health problems and to meet the most immediate needs, many official and voluntary health agencies and organizations have developed teaching materials especially for school use. Many are well planned and have been helpful in filling a void.

This is especially true when pressure builds in a community to have the schools "do something" about drugs, sex, smoking, and alcohol. However, the number of health problems deserving special consideration in the curriculum has become so great that these very teaching aids and materials can interfere with the development of a comprehensive and continuing health instruction program required to meet the many health needs and problems of today's children and youths. Too often stop-gap measures result in the hastily scheduled 2-week unit or one-lecture type of health offering to cover a specific problem—a problem forgotten the next year in order to concentrate attention on something else. This has been a pitfall in Federal funding as well. To be effective, health instruction must be on a continuing basis and not a crash program.

Fragmented educational efforts are even less effective than fragmented health care. Federal and State health and education agencies need to promote a unified approach to school health education, a program of health instruction organized and scheduled in such a way that there is coordination with other academic subjects in scope and sequence through the school years.

In some States (Florida, Illinois, Oregon, and California, for example) such programs have been developed. Provision has been made for

inservice and preservice education for teachers, updated teaching materials, and other factors that strengthen school health instruction. School districts, such as Pinellas County, Florida; Baltimore, Maryland; Huntington Park, California; and Shawanee Mission, Kansas, provide examples from among a number of excellent local programs.

Good health education curricula reflect a developmental perspective, including anticipation of certain behaviors at certain ages, emphasize decisionmaking skills for young people in the face of pressure from peers and the media and negative parental influence, and encourage the active involvement of students (*72, 153*). The notion of "inoculating" children against peer and other influences to adopt such habits as smoking, drinking, and drug use through curricula timed just before the pressure is likely to occur (e.g., fifth or, at the latest, seventh grade for smoking) is paying off in several carefully evaluated antismoking programs noted earlier.

Curriculum content is certainly a matter of local determination. Ideally the school health programs would adhere to national health goals and curricula would include: smoking, nutrition, alcohol abuse, drug abuse, driving (safety), exercise, human sexuality and contraceptive use, family development, risk management, stress management, coping, enhanced self-esteem, and environmental conditions affecting health (*10, 155* p. 9). The same basic concepts and teaching and learning skills underlie a number of these issues.

The more effective curricula include the teaching of critical health skills (e.g., *156, 157*). As one educator put it, "the decision of a sixth grader to smoke is probably more a function of skills related to self-understanding, dealing with peer pressure, and decisionmaking, than with an understanding of the dangers and risks of smoking" (*158*).

Sex Education[14]

The teenage birthrate is declining, even though the proportion of sexually active teenagers is increasing, but a large part of this decline can be attributed to abortions rather than to the use of contraception. Thirty-eight percent of black and 14 percent of white adolescent girls have had sexual intercourse by age 15 (*159*), before most sex education courses are offered. About one-half of all conceptions of teenage girls occur in the 6 months after first sexual intercourse (*160*), and many of these young women and their partners are not knowledgeable or mature enough to use any form of contraception. Among adolescents there is an increase in the incidence of sexually transmitted disease, in the number who report ever having sexual intercourse, and in the number of sexual partners they have ever had (*161*).

Some form of sex education in school curricula is widespread (*162*). Seven in 10 never-married U.S. women aged 15–19 have had a sex

[14]Sex education is singled out for special comment because of the importance of sexual behavior to the health and well-being of adolescents and any children they may bear at young ages, and because this subject highlights the need for families to play a more active role in preparing and protecting their children.

education course, almost all of them in school, and about half have had some instruction about modern contraceptive methods. Six in 10 have had some formal instruction about venereal disease and 7 in 10 have had detailed instruction about the monthly cycle, but only 19 percent could identify correctly the fertile period in their monthly cycles (*163*). It seems, then, that most of these programs are too little and too late (*48*).

Sex education programs that have been evaluated tend to be the better ones, and they have shown a number of positive effects: increased knowledge about sexuality, increased tolerance of the sexual practices of others, but no change in the students' personal values that guide their own behavior, little effect on the amount of various types of sexual behavior such as petting and intercourse. Courses emphasizing contraception *may* increase the use of effective contraception and decrease both the use of ineffective methods of contraception and intercourse without contraception, and programs actually providing contraception or providing a bridge to a specific clinic *may* dramatically reduce teenage pregnancy (*162*, pp. 1--2.)

School-based sex education courses should include far more than discussions of reproduction. They should focus on reducing teenage pregnancy and venereal disease and on facilitating a positive and fulfilling sexuality, which is not to be confused with the facilitation of sexual activity. For some teenagers, a more positive sexuality may result from *decreased* sexual activity or abstinence. Thus, sex education should include the improvement of interpersonal relationships and development of self-esteem, as well as contraception, sexual behavior, the emotional and social aspects of sexual activity, values, and decisionmaking and communication skills. These tasks clearly require that sex education topics be included in several grades and that parental involvement be as active as possible. Programs that increase and improve the communication between adolescents and their parents and/or important adults are needed, and currently such programs are rarely offered through schools.

Those who work with pregnant adolescents and at least one recent study of black urban youths (*159*) indicate that, although many adolescent pregnancies are unplanned, a birth is not unwanted and not regarded as making life "worse" or "ruined." The realities of parenting need to be conveyed more successfully in school programs, including home economics courses.

Health Education as Part of School Health Services

The trend toward expanding health services in schools is gathering momentum. Model programs, such as those in high schools in Jackson, Mississippi and the inner city of St. Paul, Minnesota (*164*), and in the elementary schools in Pomona, California (*43*), and Galveston, Texas (*165*), suggest several advantages of such services for the integration of health education. School-based health care providers can offer special education for children with chronic illnesses such as asthma (*166*). Health service personnel ought to be a source of information regarding health problems and concerns among students and staff for the purpose of

developing more relevant health education in the classroom and parent education programs.

School-based health services, whether the traditional school nurse or full-service clinic, offer the potential for teaching children about self-care, their use of illness as a coping mechanism, and wise utilization of health care services (*43, 166, 167*). The experiments conducted by Lewis and Lewis (*43*) in California in which children could elect to see the school nurse without adult interference suggest that although utilization patterns are set early, based on birth order and parental patterns, there is potential for learning more self-reliance and alternative coping responses to stress other than a "math headache." Health services offered through schools should be offered in conjunction with curriculum components including those that are oriented toward decisionmaking about using services for both well and sick care.

Physical Education

Although adult participation in recreational exercise and sport has reached unprecedented levels in the U.S. in the past 5 years, there has been a decline in the quantity and quality of school physical education programs. The economic pinch has produced cutbacks in State and local funding for physical education and now only one child in three participates in a daily program of physical education, and physical education is increasingly being offered as an elective at the secondary school level (*4*). In a recent survey of New York State elementary schools, four out of five had not met the State requirements for physical education activity in the previous year. Lack of facilities and programing is most problematic in sparsely populated rural areas and congested inner cities.

The consequences of inadequate school programs and sedentary activities, such as television viewing and inadequate community facilities surface in a variety of ways. For example, the President's Council on Physical Fitness and Sports offers a simple screening test to identify children who are considered to be "physically underdeveloped" by reason of excess weight, muscular weakness, low endurance, lack of coordination, or some combination of these problems. One of every six children taking the test fails it (*168*, p. 4).

It is important not only to reverse this trend but also to increase the emphasis on lifetime fitness and other health maintenance skills for both boys and girls, which can have impacts far beyond the development of specific athletic skills. Implementation of such school-based programs will require increased commitment by schools and community cooperation, and a reorientation in arrangements for receiving expert advice and support from such sources as local sports medicine and fitness councils within school districts (*168, 169*).

Extracurricular Programs

Schools and community agencies are developing new ways of channeling the strong influence on health-related behavior exerted by peers

toward positive health goals. Such programs take different forms including the education of younger children by trained older students and the education of age mates by trained students. Some of these programs are very large in scale. For example, in New York, teams of high school students, each with responsibility for its own format, visited 71 elementary schools, reaching nearly 10,000 fifth and sixth grade students. A peer group model program called "Teenage Health Consultants" in Minnesota is designed to provide information and training to adolescents who then become health educators and make referrals within their peer groups (*170*). This program has been replicated in communities as well as in schools, and it is concentrated mainly on drug use/abuse, human sexuality, mental health, food awareness, and community health resources. There are numerous reports of the use of such peer education in smoking education (*7*, pp. 20–29).

Family planning clinics, such as that offered by the city health department in Berkeley, California, have developed model outreach education and counseling programs. Examples from drug programs include

- *Project SPARK* (New York) is the Nation's largest school-based drug-abuse prevention program. Strategies include drug education, intervention through groups and individual counseling, training of a peer leadership cadre, home visits, parent workshops, parent/child group sessions, community involvement, curriculum development, alternative activities, and inservice training for teachers. Students in the program had fewer absences, fewer drug-related referrals and disciplinary actions, and better grades than a control group.
- *Port Washington Project* (New York) is an alternatives program offering junior high school youths an opportunity to develop video productions that address the problems they encounter. In comparison to controls, participants in the program demonstrated an increased sense of personal worth, reduced their proclivity to use drugs, evidenced positive patterns of social and personal growth, had fewer incidents of drug-related deviant behavior, and improved their academic performance.
- *Project Pride* (Florida) also uses peer counseling as prevention strategy. The program was designed to complement and supplement existing guidance programs in the schools and to take advantage of the positive influences young people can have on each other. Selected student volunteers from 12 junior high and senior high schools were trained in counseling and problem-solving skills. Peer counseling was made available to youths through a "rap room" within the schools. An evaluation of the project found that the counselors and counselees who were involved in the program for at least 1 month showed greater positive change in their attitudes toward self than did a matched control group. And, 96 percent of the teachers reported observable benefits for the students as a result of peer counseling. Improved communication between teacher and student was cited most frequently.

Preschool

Head Start programs and formal day care preschool programs offer special opportunities to involve parents and to build dental, nutrition, and safety habits and contribute to a positive self-concept. Head Start performance standards have required health education for the past 7–8 years, and technical assistance consultation and activities guides (*157, 171*) have been offered through regional offices. Teacher training could be further improved, with stronger monitoring and more active dissemination of model materials.

Implementation

Support and Coordination

Federal and especially State Governments can play a significant role in advancing school health and safety education by disseminating curricula and teaching materials to local groups of parents and educators.[15] Consultants and technical assistance and training teams are essential if these materials are to receive fair trials.

Clearly articulated school health policy or a consistent Federal coordinating mechanism has not emerged in the 20th century. As a result, at present, there are no clearly defined health-related responsibilities among State education and health departments, schools, the health systems, and the family.

Current Federal efforts to stimulate and improve school health education are now being carried out by a variety of offices within the Department of Health and Human Services (DHHS) and the Department of Education. Within DHHS they include the National Institute of Mental Health, the National Institute on Drug Abuse, the National Institute on Alcohol Abuse and Alcoholism, the Administration for Children, Youth, and Families, the Office of Adolescent Pregnancy Programs, the Bureau of Health Education, and the Office of Maternal and Child Health. There is wide variation not only in subject matter but in approach, and the programs range from categorical (alcohol education) to generic/health enhancement (esteem building, development of coping skills). The Bureau of Health Education for the past 5 years has conducted comprehensive curriculum development and validation studies primarily through the establishment of a privately based Center for School Health Education, and it has funded advocacy projects for the improvement of health and safety education in the schools through the National Congress of Parents and Teachers (*173*).

The Department of Education now has an Office of Comprehensive School Health. This office has a very small staff, which is responsible for coordinating Federal school health programs and for working with State and local education agencies to develop programs in school health. The Congress also has indicated support for child health education, and the

[15]For an excellent summary of available materials and dissemination methods by State, Federal, and private agencies see Kolbe and Iverson, (*172*).

School Health Education Program (P.L. 95–561, Part I) would provide funding for local and State education agencies to establish demonstration and pilot projects in comprehensive school health education if moneys were appropriated for its implementation.

Coordination of health instruction, health services, and food programs has been difficult because of the traditional separation among educators, health professionals, and nutritionists at all levels. For instance, in 1977 there were at least a dozen Federal agencies providing funds totaling more than $2.1 billion ($1.6 billion for school feeding programs) to State and local agencies earmarked for school health activities or general health funds, which may be spent for the same purpose. There is little coordination and joint planning among these agencies. In addition, there is an estimated $300 million that the States provide for school health activities. State education plans show little coordination of or priority for promoting health education or primary health care through schools. Funds have tended to go to health and food services, even when a small part is earmarked for training and education (e.g., Nutrition Education and Training Program, Department of Agriculture). There is, in fact, language requiring formal agreements between local health and education agencies in regulations for several programs. This tendency may increase with the establishment of the separate Department of Education.

Teacher Training

Only 22 States certify secondary school teachers in health education (*174*), and with decreasing enrollment more and more schools are asking their teachers to teach outside their fields. Elementary school teachers usually lack adequate training for the effective teaching of health education. Today when children with varying special needs are being integrated into regular schools and classrooms, the health and developmental needs of these children also should be an integral part of teacher preparation and inservice training. In addition, training should enable teachers to detect problems at an early stage and refer children for assistance.

Measures for improving teacher competence in health education include grants to State and local agencies for continuing education (with the provision that they enlist the cooperation of the health agency); encouraging States to require preparation in health education for elementary school teachers; and encouraging States to require credentials in health education for teachers of health education courses at the secondary school level.

All preschool and elementary school teachers should be knowledgeable about the special needs of children with handicapping and other health problems, be able to detect certain vision, hearing, and other health problems, and be able to implement a health education curriculum. In addition, certification of secondary teachers in health education should be adopted by all States which in some areas may imply "retooling" of college faculties to ensure high-quality preparation. Only 22 States have mandatory school nurse certification requirements and three others are developing them (*174*, p. 5). Classroom teaching by school nurses and of

individual children and parents would be strengthened if certification were required for such nurses and if health education training were a criterion for certification.

Summary

The schools are receiving renewed attention as sites for disease prevention and health promotion at the same time that some of them are hard pressed to accomplish other basic tasks. However, many excellent programs attest to the potential success of health education—as a part of health services, in the classroom, in physical education programs, in extracurricular activities, and as a product of a healthy school climate of discipline and respect for students.

To ensure that children in over 16,000 school districts have appropriate and high-quality health education, and recognizing at the same time local control of schools, will require the resolution of certain issues including agency "turf," teacher and school nurse competency in health instruction and physical education, and Federal, State, and local commitment to quality health education. Possible steps include

- Promoting a working relationship between the health care services, school food programs, and classroom and extracurricular health education programs at the Federal, State, and local levels
- Promoting the development and diffusion of comprehensive school health instruction curricula through such steps as urging allocation of funds for the School Health Education Program (P.L. 95–561, Part I), which provides funds for State and local school health education demonstration and pilot projects and by increasing support for the Office of Comprehensive School Health Education, which provides technical assistance to State and local education agencies
- Improving teacher competence in health education through grants to State and local agencies for continuing education (with the provision that they enlist the cooperation of the health agency)
- Encouraging States to require training in health education for elementary school teachers
- Encouraging States to require credentials in health education for teachers of health education courses at the secondary school level
- Encouraging States to require that training for school nurses include adequate training in education
- Creating incentives for State and intermediate level education agencies to employ health education specialists
- Counteracting the decline in physical education programs and increasing the emphasis on lifetime fitness and other health maintenance skills
- Continuing to strengthen the health education component in Head Start programs through teacher training, better dissemination of model curricula, and project monitoring
- Stimulating further development of peer counseling and other extracurricular activities directly or indirectly beneficial to health

The Mass Media

The mass media, and particularly television, have a tremendous potential to influence health. The first concern should be that the mass media do no harm. The second and almost equally important concern is that it be used to improve health and safety-related behavior.

Protection

There is widespread agreement on the need to limit or at least to provide a counterinfluence to the negative effects of programs and advertising viewed primarily by young children. There is, however, widespread disagreement over the degree of protection needed and the choice of methods. There are a number of methods that can be used to alter the negative impact of television, including complete and partial bans on airing certain types of advertising or behavior; limiting particular promotional techniques or behaviors; limiting the volume of commercials for given types of products; affirmative health disclosures and warnings within the context of a given commercial; counteradvertising; and modeling of positive behaviors (e.g., wearing seat belts in automobile ads and portraying children without sex-role stereotypes).

Both the Federal Trade Commission in the context of the proposed "Children's Advertising Rule" (*64*, pp. 42–50) and the Federal Communications Commission (*175*) have concluded that while bans are remedies of the last resort, the other alternatives are less likely to be effective in the case of young children. Other evidence suggests that adherence to the Broadcaster's Code has been disappointing. Militating against the use of bans are questions of constitutionality, a traditional spirit of caveat emptor, and disputes over jurisdictional authority of potential regulatory agencies.

Counteradvertising could provide supplemental nutritional, safety, and other health information. The effectiveness of counteradvertising was demonstrated during 1967–70 when the Federal Communications Commission's Fairness Doctrine led to $60 million being spent in 1 year alone for free television time for antismoking campaigns to counter cigarette advertising. Despite the fact that time used for cigarette advertising was four times (*176*) greater than that of the counteradvertising, there was a decline in per capita cigarette sales in the United States. Consumption increased again after cigarette advertising was removed from television and with it most of the antismoking messages (*177*). It could be that the two types of communications represented a "two-sided argument." Such arguments have been found to be more effective than those that present only one side (*178*). The counteradvertising appears primarily to have resulted in smokers switching to lower tar and nicotine cigarettes and in influencing nonsmokers not to start (*179*). The deterrent effect was less strong among adolescents, perhaps because the antismoking messages concentrated on health consequences only and did not appeal to attractiveness—the more salient motive for this age group.

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Possible methods of funding counteradvertising include the requirement that advertisers set aside a certain percentage of their advertising budget for counteradvertising of regulated products (*64*) or the levying of a "ratio of risks to benefits tax," which would be based on the degree of noxiousness of the product (*180*). In addition to regulatory approaches there are three other important avenues: education and encouragement of alternatives to commercial programing and to television as entertainer and babysitter.

Educational efforts to foster the critical viewing skills of children and to guide and modify the context of children's television viewing show promise. These efforts include classroom sessions based on advance descriptions of shows and accompanied by teaching guides for teachers. The Department of Education has recently funded four large experimental projects at the elementary, junior and senior high school, and junior college levels to develop and test appropriate viewing skills curricula, so that evaluation of this approach will be forthcoming soon.

There is also some evidence that the influence of television on children can be mitigated by parents and teachers. If, for example, television violence is criticized by an authoritative person, subsequent aggression on the part of the child viewer is sharply reduced. Other studies conclude that "television may teach, but the outcome of that teaching is subject to the views and opinions expressed by parents and teachers.... Much of the power of television depends on an unnecessary vacuum that adults create by omission" (*58*).

A number of years ago, local and national groups were mobilized to form a citizens' lobby to protect children's interests in television programing and advertising and to promote parental participation in children's television viewing, including program selection. Families are encouraged to watch selected programs together and to interact during the show, further benefiting from comments and reactions. Because efforts such as these and *The Family Guide to Children's Television* (*57*) have been directed largely to the middle class and because low-income children spend twice as much time watching television as more affluent children (*181*, p. 20), education programs for low-income parents ought to be a high priority along with programs for middle class parents.

Although segments of the population are well served by the broadcasting system, the children are woefully underserved. The FCC believes that there is considerable demand for and benefit to society from age-specific educational programing, but that this demand is unfulfilled. The limited number of broadcasting outlets across the country limits opportunities for program diversity and prevents the development of programs that meet preferences of small audiences. It is important to realize that the initial research and development period required to create the level of quality educational programing of "Sesame Street" and other acclaimed programs is both expensive and lengthy. Lesser (*182*), however, notes that fewer resources are necessary once the initial program costs have supported the creation and production process. Some change is occurring for children living in families able to purchase cable programing. In the last year, three different cable program packages have been initiated. For example, "Nickelodeon" provides an entire channel of programs for children, some

aimed at each age group, and much of it is educational specifically for preschool children. "Nickelodeon" offers 125 hours of varied, violence-free material with no advertising.

A note of caution over the argument that the so-called "new technology" will offer a great diversity of television programing, with far more programing being available for children has been sounded by Comstock:

> In the abstract, they also promise television for specialized and smaller audiences than those from which broadcasters now reap their rewards. Yet there are two unanswered questions. The first concerns who will pay and how universal access for children will be achieved. Access to these devices are contingent on family affluence, and what the new technology may bring is two video cultures—one, barren and stripped, for the children of the poor, and another, rich and varied, for the children of the rich. The second concerns how the ostensibly superior programing will be financed. Television is an expensive business, and the fractioning of the audience simply may not result in enough viewers to make new and different programing profitable. Thus, the new technology may come to mean only more of the same. Conceivably, it could even mean less of the same—if the new technology draws enough viewers away from broadcast television to reduce the investment that broadcasters now make in new programing. Television not only commands our attention for what we have seen of it, but for the unknown that we will discover in the future (*58*).

Alternatives to television viewing should be made available. Again, special priority goes to disadvantaged children who tend to live in neighborhoods with fewer recreational facilities and fewer organized activities. Increased availability of child care would help reduce reliance on television as a babysitter and companion.

Promotion

Just as the mass media can be a negative influence on health-related behavior, they also have the potential to promote health. However, a belief in the "power of the media" without consideration of its limitations has led to some expensive failures. There are several answers to the question, "Why can't we 'sell' safe driving, good nutrition, or abstinence from smoking, just like Pop Rocks or Schlitz?"

- The goals of advertisers are usually very different from those of public interest or social welfare agencies. Corporate advertising campaigns usually aim to affect brand preferences only and are considered successful if just 1 or 2 percent of the target audience switches to their brand. Health promotion programs may seek to change the behavior of a large proportion of the target population and to influence people to forego familiar and deeply embedded habits or to adopt behaviors that are inconvenient or difficult.
- Advertisers usually have an advantage in that the desired response is easily elicited, or they remove as many barriers to a favorable response as possible. People can respond to such advertising on

their next trip to the store or by making a single toll-free telephone call. Health activities are usually less convenient, as in the case of making clinic visits during working hours.

- The resources of health agencies for advertising are miniscule compared to the advertising budgets of major companies.
- Commercial advertisers even have the advantage of the cumulative effects of advertising by competitors for the same products. In competing for the children's aspirin or candy market, they are all contributing to the perception of the desirability of and need for such products.

Media for Specific Audiences

The mass media and selected channel within a medium vary widely according to their audiences and their ability to tailor programs to the needs, interests, and culture of their respective audiences. Television is most likely to reach young children, elderly persons, others who are at home during the day, and low-income groups. Radio is more likely to reach teenagers and elderly persons than other age groups. Such selectivity was a major factor in the ineffectiveness of the $7 million privately sponsored "Feeling Good" series several years ago, which was aimed at low-income adults. It was aired on public broadcasting stations but very few people in the intended audience generally watch these stations. The "Feeling Good" evaluators ruefully drew the following conclusion about television: "The near-universality of television receivers does not imply a realistic potential for universal reach by any particular program." The potential of any program or series is limited by predispositions toward the program concept, availability of viewing time, established patterns of viewing or not viewing public television in general, and awareness of particular programs (*183*). The cost of such programs must therefore be evaluated in relation to the cost per *appropriate* person reached.

There is considerable evidence that the mass media are best used to inform people or to reinforce messages originating elsewhere (*184, 185*). The media can be effective in changing behaviors that are not deeply ingrained and for which there exists an easy and acceptable substitute—e.g., switching to sugarless chewing gum or a higher quality snack (*186*, p. 187). The media are not usually effective in changing complex health behaviors, although some of the audience may be prompted to take the recommended action and may later influence others. For example, the literature on the effectiveness of radio and television on automobile seatbelt use has been consistently negative (e.g., *187*).

Determining content of media messages requires careful study of the intended audience and knowledge of literature on persuasive communications (*178, 188, 189*), and diffusion of innovations (*184*). For example, adolescents are very well informed about health topics such as smoking. Thus, media efforts should be directed not at informing but at helping adolescents deal with peer pressures (*5*) and at appealing to other motives. On the other hand, adolescents do not usually have as detailed a knowledge about contraception. Because of the detail, this information might best be transferred by magazine articles rather than television.

The use of television for instruction in school and at home has had several notable successes. "Sesame Street" and the "Electric Company," both of which receive Federal funding, have increased reading skills and served as alternatives to advertisements and programs with objectionable content. Success of such programs may be more modest, however, in influencing health-related behavior. One series on parenting, "Footsteps," funded by the Department of Education and aired on public broadcasting stations has been used extensively by community groups and colleges. Unfortunately, the effects of the program on knowledge, attitudes, and behavior are unknown.

The production of high-quality media programs for a large number of schools and other local agencies that would never be able to afford them is a legitimate part of Government health education activities, but given the high costs and the unanswered questions about their effectiveness, evaluations should be a required part of such projects.

The uses of television are expected to change as package programing, video discs, and cable television become common. These alternate systems are much less expensive and provide a greater opportunity than broadcast television for reaching specific populations, and they are also easier to combine with other educational methods. For these reasons, cable television appears to have a potential role in health education (*190*), and already there is at least one station for hospitalized people.

Media Other Than Television

Patient package inserts and food, drug, and other substance labels are other media that enable already motivated people to obtain important health information. The new FDA regulation requiring that the contents of commercially sold baby foods be listed on the label, not only allowed consumers to make better choices, but also led manufacturers to improve the quality of the foods being sold. Standardization, such as the adoption of a standard and universal symbol of danger recognizable by children, would greatly assist educational campaigns and encourage understanding and attention. Standardization in packaging consumer information is a necessary, although not sufficient condition for wise consumer choices and would support continued efforts by the Food and Drug Administration, the Department of Agriculture, and the Consumer Product Safety Commission to improve product labeling and package inserts.

The Department of Health and Human Services is increasingly redefining its role as a "wholesaler" of health information and is currently considering ways to channel this information through other more influential channels. Intermediary or "access" groups such as labor unions, health care institutions, community organizations, PTA's, and the like have special credibility for certain populations and the ability to "translate" messages into the frame of reference of their constituents. Under this approach Federal support to intermediary groups includes collection of information and consensus building; determination of high-risk populations in order to formulate appropriate basic messages; and the provision of message testing services and the conduct of program evaluations. This is more efficient and effective than general programs

that do not reach large subpopulations. In addition, such an approach also encourages the building of new networks that could continue autonomously even if Federal moneys are shifted to other priorities.

Summary

There is a need to increase the protection of children against media influence leading to unhealthy behavior. Such measures could include the following:

- Requiring counteradvertising for commercially advertised products that are harmful to health. The "two-sided arguments" should be developed under auspices other than advertisers.
- Monitoring network programing and periodically reporting to the public on program content and advertising on programs that children often watch.
- Modifying license renewal forms to require information specifically about the licensee's programing for children.
- Engaging in "jawboning" with the networks regarding commercial advertising, programing balance, and the modeling of health-enhancing behaviors.
- Limiting the type and amount of advertising directed at young children.
- Increasing support for the "critical viewing" skills to reduce the impact of commercial and other media messages.
- Encouraging parents to monitor viewing, to emphasize selective rather than continuous viewing, and to discuss programs and commercials with their children.
- Fostering the development of alternatives (recreational opportunities and child care centers).

Mass media should be used more effectively to communicate health-related information and to encourage healthful behaviors by

- Continuing Federal support for high-quality educational programs of proven value and evaluating the impact of new programs on behavior
- Encouraging the endorsement of healthful products by professional organizations and by characters/celebrities whom children hold in high esteem
- Sponsoring public service announcements and purchasing prime time (e.g., Saturday morning) for health-promoting advertising
- Giving higher priority for funding to programs that (a) utilize multimedia and more personalized methods; (b) take into consideration the ability of the "target audiences" to follow through on any positive motivation that may develop; (c) select channels with a high probability of reaching the intended audience; (d) develop messages carefully, using communications and learning theories; and (e) include an evaluation component
- Emphasizing and improving the role of the Federal health agencies in developing model messages for groups with existing credibility in communities and among high-risk subgroups, and

assisting such intermediary groups in building their capacity to relate to the health needs of their constituents

Community Settings

The formal and informal structures within the community offer a scale and group identity better suited to certain public education and support tasks than larger bureaucratic and centralized structures.

A wide variety of lay self-help groups, including Candlelighters and other support groups, Parents Anonymous and other treatment groups, the National Welfare Rights Organizaton and other social advocacy groups, women's health collectives, food cooperatives, and other alternative communities provide examples of the vigor of private groups. In urban as well as rural areas, a variety of public and private agencies and youth-serving organizations have been involved in health and safety education. These include Boys' Clubs, Scouts, Police Athletic Leagues, athletic programs of cities and towns, and youth groups in religious organizations. The Federal Education and Parenthood Program, for example, was adopted by many youth-serving groups with positive results. The Boys' Clubs have undertaken excellent alcohol education, immunization, and hypertension programs.

Educational campaigns aimed at social groups can help to change the context in which individuals, particularly children, decide about health behaviors. Communities, worksites, and families can be assisted in looking critically at the implicit and explicit messages they convey about health and acceptable behaviors.

It is important to recognize the paradoxical nature of support systems, which can also be destructive or confusing. Health seeking behavior may be vying with or undermining family or peer relationships, since a support system may itself have some investment in maintaining an unhealthful behavior.

A growing number of youngsters are without very many sources of support. It is difficult, for example, for an adolescent to adapt to a society that is becoming increasingly fragmented, characterized by disillusion of community, absence of inconsistent adult role models, rapidly changing sex role expectations and sexual mores, and few meaningful employment or recreational opportunities. Where once a clear and relatively consistent set of prescriptions for behavior were conveyed and enforced through tight family and social networks, there are now fewer clear-cut guides for behavior. The credibility of former authority figures has been undermined, and the ties with traditional sources of influence have been weakened.

The task of health education was once to interrupt the normal flow of information and social influence on health in order to correct some of the misinformation in "old wives tales" and to raise public expectations for the newly developed potential of modern public health and medicine. Today the task of health education is to strengthen and supplement traditional channels of communication and social influence in order to reach culturally diverse and socially isolated people. Such channels are

needed to interpret and adapt centrally produced health information that cannot be equally sensitive to the many variations of problems, concerns, circumstances, risks, values, and attitudes of a pluralistic community and society. Programs with a strong commitment to empowering individuals, families, and community groups should, therefore, be given a high priority.

Community Organization

Organization at the community level has taken several approaches, depending on the strength of the informal systems, the quality of their relationships to service and other institutions, and the philosophy of the agency or group initiating the program. Broad involvement of people for determining and solving their own problems, building consensus among community groups, and increasing interest is one major tactic, based on an assumption that there are common interests or at least reconcilable differences. A self-help and family education program in Oregon assisted communities in learning crucial first aid and home care skills (*191*); numerous programs in North Carolina, notably the 30-year-old Farm and Home Organization of Chatham County, addressed a number of community needs (*192*); and the Mom and Tots Center described in *9226 Kercheval—The Storefront That Did Not Burn* (*193*) was a community-based clinic.

Social planning approaches emphasize rational deliberation and technical expertise for solving problems. Fact gathering and data analysis are stressed over community participation. Such approaches have resulted in important interorganizational agreements and cooperative enterprises, which have solved problems of splintered and sometimes conflicting activities and filled in gaps and coverage—interagency councils on family planning, smoking, child welfare, drug abuse, and the like.

At times basic changes are needed in major institutions and community practices and distribution of power and resources in the community. Although social action through such agencies as Community Action Agencies are in less favor than they were in the 1960's, such approaches are a legitimate and needed tool for improving child health. Mobilization of diverse interest groups such as Merchant Seamen and public assistance beneficiaries prevented the closing of the Public Health Service Hospital in Seattle in the early 1970's. Various interest groups have successfully brought about product safety legislation and recall of hazardous products. Legal assistance action in organized groups of Medicaid beneficiaries and advocates has stopped Medicaid cutbacks and imposition of copayments in numerous States and brought about the implementation of Early Periodic Screening, Diagnosis Treatment (EPSDT) programs in others.

Selected Programs and Activities Within the Community

Agricultural Extension

Agricultural Extension has a unique and only partially realized potential for health education in rural communities at all levels of the

population. Its mission is education and community development to help people improve their social and economic well-being, and one of its five goals is family health. There is a cohesive, credible, and well-staffed network of home demonstration agents and youth workers, which in many States still reaches small farmers. Health programing has varied over the years. Recently there has been a resurgence of interest and activity, but funding is very limited. Most States have extension specialists working on health projects, and eight States (Arkansas, Louisiana, Pennsylvania, Ohio, Virginia, Maryland, Missouri, and Wisconsin) received special Federal funding for consumer health education projects in various areas of health care services in the early and mid-1970's. In Arkansas, for example, Agricultural Extension was the basis of the immunization program. In the case study of the hypertension project, one of the many health programs of the active Florida Homemakers Council, the capacity-building aspect is emphasized:

> Many women attending the workshop [State meeting of the Homemakers Council on Hypertension] came from rural counties and were not totally familiar with their resources. They felt incompetent to initiate a program. The workshop sessions helped them realize that the needed resources *were* available to them for an education program on hypertension and a cardiovascular screening program: county health departments . . . [etc.]. Through the workshop sessions they began to gain confidence in their own abilities to plan and initiate local level programs. . . .
>
> Sixteen Homemakers Clubs with membership in the low-income group, three-fourths of whom are Black, have initiated programs on hypertension. The Extension home economics agent helps them understand the problem of hypertension, then lets them decide how they want to cope with it (*194*).

A longitudinal evaluation of one of the Expanded Food and Nutrition Education Programs (EFNEP) showed that monthly home visits by nutrition aides for 1 year were successful in raising the nutritional levels among homemakers in Appalachian white and Eastern Shore black families (*85*), and the study suggests that the EFNEP training and program objectives could be enlarged to achieve larger maternal and family health and sanitation purposes.

North Karelia Cardiovascular Risk Reduction Project

One example of a community-wide health improvement project that has captured the imagination of policymakers in recent years took place in a Finnish community with the highest premature cardiovascular death rate in the world. This project demonstrates the powerful force that can be exerted by community norms once the initial momentum for change has been achieved.

This project brought about changes in health behavior associated with cardiovascular risk and reduction in cardiovascular morbidity and mortality through a combination of approaches, including increased health information through the media; health education training for personnel working in the field of health, education, and social welfare, as

well as in civic organizations; organization of special services (health, school, social services, and civic organizations); and introduction of environmental changes (low-fat dairy products and sausages, vegetable growing, improved diet in institutions, prohibition of smoking in public places) (*195*).

This project should be characterized as a community development effort, and it was initiated in response to a petition from the community to the central Government for assistance, not the reverse.

Channel One

Another example of a nationally recognized project that has included an evaluation element is Channel One (meaning the community as the number one channel for influence and action), an alcohol and drug abuse prevention program for young people. Funded by the National Institute on Drug Abuse (NIDA) Prevention Branch through its Pyramid Project and through the Gloucester Community Development Corporation of Gloucester, Massachusetts, Channel One involves the Prudential Insurance Company and its sales managers who work with representatives of NIDA single State agencies and provide support materials. Channel One "is a *process* that leads to a networking partnership among people, the public sector, and the business sector, primarily on a local community level" (*196*). It will be recognized that this is a classic community development approach that secures local resources and involvement to provide school credit and, sometimes, a small wage for working and learning from community projects. That the resources—specialist-guides, materials, and projects—come largely from the community builds a sense of the community's valuing their adolescents. This project is credited with encouraging school performance and reducing dropouts and with preventing drug and alcohol problems.

Collective Action for Environmental Protection and Safety Regulations

Public support and understanding are needed for the success, if not the enactment, of protective strategies to influence health and safety. Public values in the United States tend to be in opposition to interference in parental prerogatives and in behaviors thought to be harmful only to the individual engaging in them. The repeal of motorcycle helmet laws in 27 State legislatures provides an example of the strength of sentiment in some sectors against governmental regulation of individual behavior. In Maryland, for example, this occurred despite testimony from a variety of groups and convincing data showing that repeal brings a 50-percent reduction in use and a 38-percent increase in motorcycle mortality (*197*) as well as substantial injury costs (*198*). In this case there has not even been opposition by product manufacturers

Arguments invoking the value of "individual freedom" have been used for many years to oppose pasteurization of milk supplies, to oppose gun control, child safety restraints, and fluoridation of water supplies. Studies of fluoridation decisions suggest that expert opinion alone is not enough

to sway legislatures or city councils when there is division of public opinion (*199*). Such health decisions are political issues and a broad public base must be sought. The success of legislative, regulatory, and institutional actions to restrict smoking in public places in the last few years would have been inconceivable just 5 years earlier. It was not until there was sufficient public awareness of the effects of smoking on smokers and nonsmokers alike and sufficient mobilization of public sentiment led by voluntary and professional health associations and agencies that actions were taken that were once viewed as unacceptable infringements on individual liberty.

Because financial interests in some sectors oppose needed protective action and because many citizens are not mobilized to participate in the debate on the side of protection, the voluntary health agencies, health professional associations, and groups organized around the interests of children and youths need to continue to enlist public support for and understanding of the need for enacting important health and safety regulations and then to shift to a reinforcement effort after enactment.

Implementation

There are many programs being sponsored by official agencies and formal and informal voluntary groups which make substantial contributions to the health and well-being of their communities. Some are stimulated by the production of materials and guidelines by national or regional organizations, e.g., the Office of Education's "Footsteps" series on parenting aired on Public Broadcasting Stations and extended to numerous community groups along with the parent and group leader guides; the National Safety Council's Inner City Home Safety program developed in Chicago's Cabrini–Green housing development; the program assistance given by the Childbirth Education Association of America or La Leche League to their affiliates; and the recent immunization campaign designed and implemented by the Boys' Clubs of America. Less often publicized are the completely local and unsung cooperative efforts that enhance life in neighborhoods.

Two major Federal programs also are noteworthy: Health Planning Agencies and the Health Education Risk Reduction Grant Program. Using different approaches and having different mandates, both programs emphasize local determination of priorities, citizen participation, capacity-building interagency cooperation, and primary prevention.

Health Planning Agencies

In the National Health Planning and Resources Development Act, P.L. 93–641, Congress established health education as one of 10 national priorities that should be considered in the formulation of national health planning goals and in the development and operation of Federal, State, and area health planning and resources development programs:

- The promotion of activities for the prevention of disease, including studies of nutritional and environmental factors affecting health and the provision of preventive health care services

- The development of effective methods of educating the general public concerning proper personal (including preventive) health care and methods for effective use of available health services (cited in Draft Regulations, p. 60)

The draft proposed regulations set forth National Health Planning Goals (notice of availability published in the *Federal Register*, October 19, 1979) including

- Health promotion and disease prevention should be extended through both individual and community actions with emphasis on high-risk populations
- Health promotion and preventive health services should be an integral component of care provided by health care and other community institutions
- The rate and adverse consequences of unwanted teenage pregnancy should be reduced
- Communities, working through all available institutions and media, should strive to avoid the initiation of the smoking habit among young people, and to break the habit among those who smoke (pp. 61–74, passim)

These and other health education-related subgoals and goals should provide even further impetus for the planning agencies to be involved in health education. A survey of 50 percent of the goals in plans from approximately 200 Health Systems Agencies (*200*) shows that there are already many health education–health promotion goals slated for communities throughout the country. What is not clear is what the quality of the planning and implementation will be. Some Health Systems Agencies are already working with broadscale participation on significant health problems. Others appear to have little concept of sound educational programing or community action. Another question is the priority that will actually be assigned these goals, given the pressures for facilities planning and review activities. Clearly, there is potential for focus on health education, including community development and social action for the protective and environmental goals given in many of the plans. There is also the opportunity for these agencies to identify what health problems need assistance from outside their community.

Technical assistance and training for Health System Agency staff about community health education, possibly made available through the regional planning centers; guidelines and technical assistance and identification of resources for relevant community agencies; and the support of local programs by national efforts are all needed. Diffusion networks of effective model programs would also enhance programing.[16] A broad range of public health associations and agencies participated in the development of these voluntary standards, and they reflect a solid public health approach, including a prominent role for community and school health education. Unfortunately, mental health is not addressed.

[16] An important document, which could be used to guide the planning agencies, is the "Model Standards for Community Preventive Health Services" (*201*) prepared by DHEW at the direction of Congress in the 1977 Health Programs Extension Act.

Health Education Risk Reduction Grants

The Health Education–Risk Reduction Grants Program was begun in October of 1979 under the auspices of the Center for Disease Control (Bureau of Health Education) and was funded at the level of $10 million for fiscal 1980 to enable widespread implementation of programs:

> [T]o assist State and local health agencies in initiating, strengthening and delivering programs of health education–risk reduction activities. The grants will encourage participation and coordination of efforts by public, private, and voluntary agencies involved in health education to reduce the risks of premature death and disability associated with smoking, alcohol consumption, obesity, hypertension, stress, and other ... conditions and chronic diseases affecting the health of the American people (pp. 2–3 of grant solicitation).

The grant guidelines emphasize informed decisionmaking, and allow a community to apply for funding for a program based on a health risk not listed in the statement of purpose. Other programs that stress the development and dissemination of community health education and prevention models and guidelines are being conducted under the auspices of various offices and programs within DHHS.

An important role for Federal and State Governments in support of community efforts is the provision or encouragement of resources that enable individuals to choose healthful behaviors. Aside from the obvious examples of health care and environmental services and cash subsidies and food are urban park facilities for exercise and recreation;[17] funding for regional health-related advocacy groups, particularly those focusing on children and pregnant women; reduction of bureaucratic confusion and difficulty in identifying a target of influence by continued consolidation of programs and use of the "single State agency" concept; and action against civil rights violations in the planning and other local level processes and programs within the Federal purview.

Summary

When larger social groups surrounding an individual exert a positive health influence it is much more likely that the individual or family unit will be able to adopt healthful behaviors. Importantly, when collectivities take action they are more likely to be successful in bringing about needed changes in institutions and other resources that may expand individual options. Many viable local organizations and strong informal family and community networks already exist and have significant and positive roles in the promotion of health. Where such roles have been eroded or destroyed, maintenance and careful nurturance should be the first concern.

[17] Memorandum of Understanding between the Public Health Service and the Heritage Conservation and Recreation Service of the Department of the Interior, 1980.

Education programs and activities in community settings can be supported by

- Supporting local action and cooperation among private industry, schools, community organizations, and families in programs aimed at several health-related behaviors simultaneously, especially those with meaningful activity, including jobs for young people
- Emphasizing community organization in the guidelines for health planning agency plans for health promotion programs; defining as part of the role of health planning agencies, advocacy at regional, State, and higher levels when the risks and behavioral influences are wholly or partly outside the community's ability to resolve
- Expanding the mandate of the Expanded Food and Nutrition Education Program to include education for a broader range of health objectives, and to coordinate the planning of the program with State and local health agencies
- Enlarging the health education programs within the Cooperative Extension Program so as to build on their already extensive network to rural families
- Channeling a part of "community" funding through national organizations that have good local networks and ability to bring other resources to communities

IMPROVEMENT OF THE KNOWLEDGE BASE

The knowledge base for health education has been improving and great strides were made in the last decade. There is, however, need for much further development if the problems of health-related behavior are to be addressed effectively. Four complementary components are needed: a science base, applications development, knowledge transfer, and training in research.[18] These areas are not evenly developed, and additional, earmarked funds are needed to provide adequate knowledge.

Science Base

Over the past two decades research in educational psychology and other related behavioral and social sciences has expanded considerably and has provided useful frameworks for research in specific health areas. Especially needed is research designed to draw together relevant theory and empirical findings from the behavioral sciences that can be applied specifically to health-related behavior and then evaluated (e.g., *185, 203, 204*).

There has been relatively little research specifically addressed to health-related behavior. What has been done too often has lacked an adequate conceptual base and has not been sufficiently replicated in diverse areas of

[18]The categories used here are the new classification system of the National Institutes of Health, proposed for use in all research programs of the Department of Health and Human Services (*202*, pp. 264–270).

behavior. As a result, there is little coherent literature. Exceptions include research on the "health belief model" (*205*), which has included study of the behavioral patterns of consumers in relation to a variety of preventive measures and therapeutic regimens. This has, in turn, provided the basis for successful application. In various specific areas of research, different conceptual bases have been used. Research has been richest in teenage pregnancy, tobacco, alcohol, and drug abuse because of available funding in these areas. However, even here there remains incomplete understanding of the many complex and interrelated processes that underlie the *onset* of these behaviors, in part because of the prevailing emphasis on large, cross-sectional surveys and macroanalysis of variables. Much less funding and encouragement has been given to longitudinal, multicohort studies and to small-scale intensive studies and microanalysis of variables that emphasize subjective factors in behavior, social definitions, and social processes through time (e.g., *37, 206*). These latter studies are most valuable when they focus on social interaction as in Benoliel's (*207*) study of families' adjustment to a child's diabetes or Davis' (*208*) classic study of the families of children with polio and providers of medical and rehabilitation services.

The potential for complementary large and small-scale studies has been examined in the context of physician utilization (*209*) and health education (*210*).

Applications

The evaluation literature is growing now that a trickle of funding has been released from the National Heart, Lung and Blood Institute and other sections of the National Institutes of Health (NIH), from the Alcohol, Drug, and Mental Health Administration (ADMHA), and from several private foundations. In the last decade, the applications methodologies have turned the corner from case studies and time-honored principles toward an increasingly substantial base. However, assessment of the efficacy and widespread effectiveness of health education programs has been hampered by funding shortages; lack of evaluation expertise among health educators; the tendency of education programs to be diffuse and, thus, difficult to isolate for scrutiny; use of scarce resources for the evaluation of well-defined but weak programs; and problems of measurement.

Funding for applied evaluative research in health education has been very low relative to funding for the development of other health programs. Furthermore, funding has not always been available for highest priorities or for the development of a solid body of knowledge necessary for effective policymaking and program planning. The value of the Stanford community project was due in part to sufficient funding that allowed time for well-developed feasibility studies, planning, implementation, and feedback from program experience into the program.

Aside from the problem of poor evaluation designs, measurement methodologies have often been weak. The two major issues are what to measure and over how long a period. Given the tenuousness of the links in

the knowledge–attitudes–behavior "chain," knowledge alone or even knowledge plus attitudes, beliefs, or values is an inadequate measure of program effectiveness when the goal is to change the incidence of a behavior or set of behaviors. When self-reporting is reliable (or where the margin of error has been established) or when records already exist and when a short time frame is appropriate, measuring behavior is not difficult. Clinic visits for a screening or other preventive procedure or entry into and continuation of prenatal care are examples of such behaviors. In other programs behaviors should be continued or repeated over long periods of time such as in smoking cessation, patient counseling, adherence to a regimen for a chronic condition, nutritional practices, and institutional procedures that are conducive to patient satisfaction. Here, at least 1-year study periods are preferable, and even then the period should be extended, establishing the degree of stability over longer periods of time.

The difficulty arises when the relevant behaviors are not apparent for a long time as is often the case with school health education programs. The possible courses of action of such programs are (1) to provide for followup within large programs through the use of intermittent and separate contracts at appropriate intervals over a 10–15-year period; and (2) the development of better proximate units of measurement such as ratios of intentions and attitudes in relation to real behaviors (*211*) and testing of relevant skills (e.g., *167*).

Option 1 is practical only for carefully selected and significant interventions. A shorter time span could suffice when there is a reason to believe that the followup period will extend beyond a crucial stage such as the pressure to smoke that accompanies entry into high school. Option 2 is recommended for tracking progress of the majority of programs. Knowledge alone, however, is not recommended as an acceptable measure and should be combined with attitudes, intentions, and skills.

Marked biases about what constitutes "promising" interventions are reflected in the structure, staffing, and resource allocation within Federal health research institutions (*212*) and are changing slowly. However, these changes remain far behind the growing body of evidence that behavior is a significant etiological force and that it can be influenced positively and ethically. For instance, it has been found that for the prevention of low-birth-weight and preterm births, almost all of the attention had been given to drug therapy and the administration of iron and vitamins, and that almost no research had been done on education for smoking cessation and improved diet or decreased physical and psychological stress during pregnancy, *despite* the much greater promise they have for positively affecting pregnancy outcomes with fewer side effects (*213*).

Transfer

For those outside of health education who should know about current and past research and evaluation such as medical care administrators, doctors, nurses, school boards, and legislators, current information networks and mechanisms are inadequate.

Existing mechanisms such as the National Diffusion Network of the Department of Education, which disseminates education information to State and local education agencies and school districts, could be better utilized for health education program information. In fact, with the assistance of Federal funding, the first health education curriculum was recently validated and accepted for the Diffusion Network. Community programs with school involvement could follow. A clearinghouse for health education program information is only now being established. Federal contracts should be awarded to organizations that have the capability to develop and maintain information dissemination systems over the long term. More "state-of-the-art" conferences and workshops could be sponsored, and they should emphasize consensus development so that resulting conclusions can be used as guidelines for programs and for institutional policy development.

To produce a "multiplier effect," greater effort could be made to reach college, university, and medical school professors through intensive training, followed by short conferences and publications. To affect curricula it is necessary to impart more extensive knowledge, and a program modeled after the National Science Foundation summer workshops should be instituted. Short communications such as newsletters to health care professionals and health planning agencies could be encouraged further. Special diffusion efforts should also be developed within the Federal Government, because current research and project coordination mechanisms do not seem to be adequate in the face of personnel turnover and frequent reorganization.

Training

The continuous replenishment of trained research personnel is crucial to the development of a knowledge base about health-related behavior and educational interventions. The research capability in health education needs strengthening. One strategy is to entice behavioral scientists to work in this area. Traineeships and postdoctoral fellowships and project funding are obvious methods. However, it is also important to give research and evaluation training opportunities to people who have had relevant experience and practice because they are, presumably, in a much better position to identify the problems in need of research and to approach their research with an eye to its application.

Summary

Despite recent growth of the knowledge base for the reduction of behavioral risk, it remains uneven and in need of substantial inves ment. Specifically, it would be beneficial to

- Strengthen the science base for educational approaches to the reduction of behavior risk by increasing funding for
  (a) longitudinal studies of clusters of health-related behaviors
  (b) small-scale, intensive studies that explore the perspectives and

interactions of key figures involved in the formation and change of health-related behaviors

(c) building bodies of literature based on promising conceptual frameworks and spanning several behavioral areas

- Encourage research and development that reduce barriers to healthful behaviors—requirements of time, complexity of technical knowledge, effort, and cost
- Establish a 10-year program of large-scale research and demonstration with emphasis on community, school, and health care settings for reaching children, adolescents, and pregnant women
- Fortify the applications base by increased emphasis on analytical reviews of the literature and evaluations of theoretically and apparently excellent programs and by consensus development activities
- Narrow the substantial gap between what is known about health education and what is practiced by strengthening and extending mechanisms for the transfer of knowledge that emphasize implications for application
- Enlarge the number of well-trained researchers working in the field by increasing the number of predoctoral and postdoctoral fellowships for health education specialists and behavioral scientists and increasing the number of postdoctoral fellowships for health professionals to pursue studies and research in health-related behavior

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REFERENCES

(1) U.S. Department of Health, Education, and Welfare, Departmental Task Force on Prevention. *Disease Prevention and Health Promotion: Federal Programs and Prospects.* Washington, D.C.: U.S. Government Printing Office, 1978.

(2) U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health and Surgeon General. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention.* Washington, D.C.: U.S. Government Printing Office, 1979.

(3) U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health and Surgeon General. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention—Background Papers.* Washington, D.C.: U.S. Government Printing Office, 1979.

(4) U.S. Department of Health, Education, and Welfare. *Promoting Health/Preventing Disease: Objectives for the Nation.* Washington, D.C., 1980.

(5) McAlister, A. L. "Tobacco, Alcohol and Drug Abuse: Onset and Prevention." In *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention,* pp. 197–206. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health and Surgeon General. Washington, D.C.: U.S. Government Printing Office, 1979.

(6) Evans, R. I., A. Henderson, P. Hill, and B. Raines. "Smoking in Children and Adolescents: Psychosocial Determinants and Prevention Strategies." In *Smoking and Health: A Report of the Surgeon General,* Chapter 17. U.S. Department of Health, Education, and Welfare, Office of the Assistant Secretary for Health, Office on Smoking and Health. Washington, D.C., 1979.

(7) Green, D. E. "Youth Education." In *Smoking and Health. A Report of the Surgeon General,* Chapter 20. U.S. Department of Health, Education, and Welfare, Office of the Assistant Secretary for Health, Office on Smoking and Health. Washington, D.C., 1979.

(8) Green, L. W. "Determining the Impact and Effectiveness of Health Education As It Relates to Federal Policy." Prepared for the Office of the Assistant Secretary for Planning and Evaluation/Health, U.S. Department of Health, Education, and Welfare (Contract No. SA-7974-75), 1976. Abbreviated version published in *Health Education Monographs* 6 (Suppl. 1), 1978.

(9) Fogarty International Center for Advanced Study in the Health Sciences, U.S. Department of Health, Education, and Welfare, National Institutes of Health, and American College of Preventive Medicine. *Preventive Medicine, U.S.A.* New York: Prodist, 1976.

(10) U.S. Department of Health, Education, and Welfare, Departmental Task Force on Prevention. *Healthy People: Appendices.* Washington, D.C.: U.S. Government Printing Office, 1978.

(11) Lehman, P. "Health Education." In *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention—Background Papers,* pp. 423–438. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Health and Surgeon General. Washington, D.C.: U.S. Government Printing Office, 1979.

(12) Robertson, L. "Behavioral Research and Strategies in Public Health: A Demur." *Social Science and Medicine* 9: 165–170, 1975.

(13) Johnson, R. L. "Keynote Address." Southeast Regional Forum on Community Health Promotion, Atlanta, June 13, 1979. U.S. Department of Health, Education, and Welfare, Office of Health Information, Health Promotion and Physical Fitness and Sports Medicine: Forum Report #5.

(14) Faden, R. R. and A. I. Faden, eds. "Ethical Issues in Public Health Policy: Health Education and Life-Style Interventions." *Health Education Monographs* 6: 177–257, 1978.

(15) Simonds, S. K. "Health Education: Facing Issues of Policy, Ethics, and Social Justice." *Health Education Monographs* 6 (Suppl. 1): 18–27, 1978.

(16) Knowles, J. H. "The Struggle to Stay Healthy." *Time,* August 9, 1976.

(17) Navarro, V. "The Underdevelopment of Health of Working America: Causes, Consequences and Possible Solutions." *American Journal of Public Health* 66: 538–547, 1976.

(18) Navarro, V. "Justice, Social Policy and the Public's Health." *Medical Care* 15: 363–370, 1977.

(19) Beauchamp, D. E. "Public Health as Social Justice." *Inquiry* 13: 3–14, 1976.

(20) Wikler, D. I. "Persuasion and Coercion for Health: Ethical Issues in Government Efforts to Change Life-Styles." *Milbank Memorial Fund Quarterly* 56: 303–338, 1978.

(21) Ryan, W. *Blaming the Victim.* New York: Vintage, 1972.

(22) Galanter, R. B. "To the Victim Belong the Flaws." *American Journal of Public Health* 67: 1025–1026, 1977.

(23) Barry, P. "Individual Versus Community Orientation in the Prevention of Injuries." *Preventive Medicine* 4: 45–56, 1976.

(24) Hertz, P. and P. L. Stamps. "Appointment-Keeping Behavior Re-evaluated." *American Journal of Public Health* 67: 1033–1037, 1977.

(25) Beauchamp, T. L. "Regulation of Hazards and Hazardous Behaviors." *Health Education Monographs* 6: 242–257, 1978.

(26) Bauer, K. G. "Averting the Self-Inflicted Nemeses (Sins) from Dangerous Driving, Smoking and Drinking." In *Consumer Incentives for Health Care.* S. J. Mushkin, ed. New York: Prodist, 1974.

(27) Knowles, J. "The Responsibility of the Individual." *Daedalus* 106: 60, 1977.

(28) Pollard, M. R. and J. T. Brennan. "Disease Prevention and Health Promotion Initiatives: Some Legal Considerations." *Health Education Monographs* 6: 211–222, 1978.

(29) Steuart, G. "Health Education." In *Mustard's Introduction to Public Health*, 5th ed., pp. 399–414. L. S. Goerke and E. L. Stebbins. New York: MacMillan, 1973.
(30) Campbell, J. D. "The Child in the Sick Role: Contributions of Age, Sex, Parental Status, and Parental Values." *Journal of Health and Social Behavior* 19: 35–51, 1978.
(31) Gochman, D. S. "Some Correlates of Children's Health Beliefs and Potential Health Behavior." *Journal of Health and Social Behavior* 12: 148, 1971.
(32) Gochman, D. S. "The Organizing Role of Motivation in Health Beliefs and Intentions." *Journal of Health and Social Behavior* 13: 285, 1972.
(33) Pratt, L. "Child Rearing Methods and Children's Health Behavior." *Journal of Health and Social Behavior* 11: 207, 1973.
(34) Mechanic, D. "Correlates of Health and Illness Behavior: Results from a 16-Year Follow-Up." Research and Analytic Report Series No. 8–78. Madison: University of Wisconsin Center for Medical Sociology and Health Services Research, 1978.
(35) Campbell, J. D. "Attribution of Illness: Another Double Standard." *Journal of Health and Social Behavior* 16: 114, 1975.
(36) Campbell, J. D. "Illness Is a Point of View: The Development of Children's Concepts of Illness." *Child Development* 46: 92, 1975.
(37) Jessor, R. and S. Jessor. *Problem Behavior and Psychosocial Development*. New York: Academic Press, 1977.
(38) Luker, K. *Taking Chances*. Berkeley: University of California Press, 1975.
(39) Bandura, A. *Social Learning Theory*. Englewood Cliffs, N.J.: Prentice-Hall, 1977.
(40) Maccoby, E. E. and C. N. Jacklin. "The Psychology of Sex Differences." Stanford: Stanford University Press, 1974.
(41) Piaget, J. *The Moral Judgement of the Child*. Glencoe, Ill.: The Free Press, 1948.
(42) Kohlberg, L. "Cognitive Developmental Approach to Moral Education." *Humanist* 32: 13–16, 1972.
(43) Lewis, C. E., M. A. Lewis, A. Lorimer, and B. B. Palmer. "Child-Initiated Care: The Use of School Nursing Services by Children in an 'Adult-Free' System." *Pediatrics* 60: 499–507, 1977.
(44) Gochman, D. S. "The Psycho-social Basis of Health Education of Young Children." In Conference Proceedings, *Health Promotion and Health Education in Early Childhood*, pp. 36–44. Ann Arbor, July 31-August 1, 1975.
(45) Stokols, D. "The Reduction of Cardiovascular Risk: An Application of Social Learning Perspectives." In *Applying Behavioral Science to Cardiovascular Risk*, pp. 133–146. A. J. Enelow and J. B. Henderson, eds. New York: American Heart Association, 1975.
(46) Borland, B. L. and J. P. Rudolph. "Relative Effects of Low Socio-economic Status, Parental Smoking and Poor Scholastic Performance on Smoking Among High School Students." *Social Science and Medicine* 9: 27–30, 1975.
(47) Palmer, A. B. "Some Variables Contributing to the Onset of Cigarette Smoking Among Junior High School Students." *Social Science and Medicine* 4: 359–366, 1970.
(48) Klerman, L. S. "Adolescent Pregnancy: A New Look at a Continuing Problem." *American Journal of Public Health* 70:8: 776–778, 1980.
(49) Comstock, G. A. "The Long-Range Impact of Television." Santa Monica, Calif.: Rand Corporation, 1976.
(50) Advisory Committee on Child Development, National Research Council, Assembly of Behavioral and Social Sciences. *Toward a National Policy for Children and Families*. Washington, D.C.: National Academy of Sciences, 1976.
(51) Coleman, J. S. *The Adolescent Society*. New York: The Free Press, 1961.
(52) Cusick, P. A. *Inside High School*. New York: Holt, Rinehart, and Winston, 1973.
(53) Tomlinson, J. R. G. "An Educationalist Looks at Health Education." *International Journal of Health Education* 22: 150–160, 1979.
(54) Kovar, M. G. "Adolescent Health Status and Health-Related Behavior." Presented at Conference of Adolescent Behavior and Health, Washington, D.C. Institute of Medicine, 1978.
(55) A. C. Nielson Company. Child and Teenage Viewing, 1977.
(56) Looney, G. "Television as a Major Factor in the Ecology of Childhood." *Clinical Pediatrics* 10: 445–448, 1971.
(57) Kaye, E. *The Family Guide to Children's Television*. New York: Pantheon Books, 1974.
(58) Comstock, G. A. "Children and Health: Influences of the Mass Media." In proceedings of *Promoting Health Through the Schools*, Denver, August 25–27, 1980. Washington, D.C.: U.S. Department of Health and Human Services, Office of Health Information and Health Promotion, 1980.

(59) U.S. Federal Communications Commission. *Television Programming for Children: A Report of the Children's Television Task Force.* Washington, D.C., October 1979.
(60) Minton, J. H. "The Impact of Sesame Street on Readiness." *Sociology of Education* 48: 141–151, 1975.
(61) Cook, T. and R. Conner. "The Educational Impact: Sesame Street Around the World." *Journal of Communications* 26: 155–164, 1976.
(62) Comstock, G. A. "Television and Its Viewers: What Social Science Sees." Santa Monica, Calif.: Rand Corporation, 1976.
(63) Defleur, M. L. and L. B. Defleur. "The Relative Contribution of Television as a Learning Source for Children's Occupational Knowledge." *American Sociology Review* 32: 777–789, 1967.
(64) U.S. Federal Trade Commission. *FTC Staff Report on Television Advertising to Children,* Washington, D.C., 1978.
(65) Peterson, B., J. B. Kuriansky, C. S. Konheim, R. S. Anderson, J. Tesar, R. N. Podell, A. Ho, and N. M. Cowan. "Television Advertising and Drug Use." *American Journal of Public Health* 66: 975–978, 1976.
(66) Surgeon General's Advisory Committee on Television and Social Behavior, U.S. Department of Health, Education, and Welfare, Public Health Service. *Television and Growing Up: The Impact of Televised Violence.* Washington, D.C.: U.S. Government Printing Office, 1972.
(67) Comstock, G. A. "Television Portrayals of Aggressive Behavior." Santa Monica, Calif.: Rand Corporation, 1976.
(68) Singer, J. L. and S. G. Singer. Television Viewing—Family Style and Aggressive Behavior. In *Violence in the Family: Psychiatrics, Sociological and Historic Implications.* M. Green, ed. Washington, D.C.: AAAS Symposium Monograph Series, Weston Press, 1980.
(69) Hill, D. "Peer Conformity in Adolescent Smoking and Its Relationship to Affiliation and Autonomy Needs." *Australian Journal of Psychology* 23: 189–199, 1971.
(70) Utech, D. S. and K. L. Hoving. "Parents and Peers as Competing Influences on the Decisions of Children of Different Ages." *Journal of Social Psychology* 78: 267–274, 1969.
(71) Sherif, M. and C. W. Sherif. *Reference Groups: Exploration Into Conformity and Deviation of Adolescents.* New York: Harper and Row, 1974.
(72) Institute of Medicine, National Academy of Sciences. *Adolescent Behavior and Health. A Conference Summary.* Washington, D.C.: National Academy of Sciences, 1978.
(73) Inkeles, A. "Society, Social Structure, and Child Socialization." In *Socialization and Society,* pp. 73–129. J. A. Clausen, ed. Boston: Little, Brown and Co., 1968.
(74) Clausen, J. A. "Perspectives on Childhood Socialization." In *Socializaton and Society,* pp. 130–181. J. A. Clausen, ed. Boston: Little, Brown and Co., 1968.
(75) Milio, N. "A Framework for Prevention: Changing Health-Damaging to Health-Generating Life Patterns." *American Journal of Public Health* 66: 435–439, 1976.
(76) Children's Defense Fund. *Doctors and Dollars Are Not Enough.* Washington, D.C., 1976.
(77) Mullen, P. D. "The (Already) Activated Patient: An Alternative to Medico Centrism." In *Patient Education: An Inquiry into the State of the Art.* W. D. Squyres, ed. New York: Springer, 1980.
(78) Simmons, J. J. "Complex Issues Facing Health Education." *American Journal of Public Health* 66: 429–430, 1976.
(79) Simmons, J. J. "Lessons for Health Educators." *American Journal of Public Health* 67: 1137–1138, 1977.
(80) Nyswander, D. B. "Interview." *California's Health,* October, 1972.
(81) Andersen, R. *A Behavioral Model of Families' Use of Health Services.* University of Chicago Center for Health Administration Studies, Research Series No. 25, 1968.
(82) Green, L. W., M. W. Kreuter, S. G. Deeds, and K. B. Partridge. *Health Education Planning: A Diagnostic Approach.* Palo Alto, Calif.: Mayfield, 1980.
(83) Kar, S. B. "Community Interventions in Health and Family Planning Programmes: A Conceptual Approach." *International Journal of Health Education* 20: 1 (Suppl.), 1977.
(84) Green, L. W. "The Potential of Health Education Includes Cost Effectiveness." *Hospitals* 50: 57–61, 1976.
(85) Wang, V. L., P. H. Ephross, and L. W. Green. "The Point of Diminishing Returns in Nutrition Education Through Home Visits by Aides: An Evaluation of EFNEP." *Health Education Monographs* 3: 70–88, 1975.
(86) Bertakis, K. D. "The Communication of Information from Physician to Patient: A Method for Increasing Patient Retention and Satisfaction." *The Journal of Family Practice* 5: 217–222, 1977.
(87) Butt, H. R. "A Method for Better Physician-Patient Communication." *Annals of Internal Medicine* 86: 478–480, 1977.

(88) Louis Harris and Associates, Inc. *Health Maintenance.* Pacific Mutual Life Insurance Study, 1978.
(89) Pless, J. B. "Accident Prevention and Health Education: Back to the Drawing Board?" *Pediatrics* 62: 431–435, 1978.
(90) American Hospital Association. *Hospital Inpatient Education: Survey Findings and Analysis, 1978.* Atlanta: Bureau for Health Education, Center for Disease Control, 1980.
(91) Squyres, W. D. "Using Media in Hospitals." In *The Handbook of Health Education,* pp. 133–162. P. M. Lazes, ed. Germantown, Md.: Aspen Systems, 1979.
(92) Parcel, G. S., K. Tiernan, P. R. Nader, and L. Weiner. *Teaching Myself About Asthma.* University of Texas Medical Center, Galveston. St. Louis: C. V. Mosby, 1979.
(93) Skipper, J. K. and R. C. Leonard, eds. *Social Interaction and Patient Care.* Philadelphia: Lippincott, 1965.
(94) Somers, A. R. "Community Health Education: A Challenge to Hospital and Medical Staffs." *Journal of the Medical Society of New Jersey* 70: 943–948, 1973.
(95) President's Committee on Health Education, Task Force on Patient Education. "The Concept of Planned, Hospital-Based Patient Education Programs." *Health Education Monographs* 2: 1–9, 1974.
(96) Redman, B. K. *The Process of Patient Teaching in Nursing,* 3rd ed. St. Louis: C. V. Mosby, 1976.
(97) Mathews, B. P., P. D. Mullen, and E. M. Mast. "Hospital-Based Health Education: For Patients, Staff and the Community." *Health Values* 3: 32–37, 1979.
(98) Deeds, S. G., B. J. Herbert, and J. M. Wolle, eds. *A Model For Patient Education Programming.* Washington, D.C.: American Public Health Association, 1979.
(99) General Accounting Office. "Improvements Needed to Speed Implementation of Medicaid's Early and Periodic Screening, Diagnosis, and Treatment Program." January 1975.
(100) Grier, J. G. and M. S. Lesniak. "Community Linkages and Outreach Services in Adolescent Contraceptive Clinic Programs." *Public Health Reports* 94: 415–419, 1979.
(101) Schroeder, S. A. "Lowering Broken Appointment Rates at a Medical Clinic." *Medical Care* 11: 75–78, 1973.
(102) Robertson, L. S., J. Kosa, M. C. Heagarty, R. J. Haggerty, and J. J. Alpert. *Changing the Medical Care System: A Controlled Experiment in Comprehensive Care.* New York: Praeger, 1974.
(103) Mullen, P. D., K. Kukowski, and S. Mazelis. "Health Education in Health Maintenance Organizations." In *The Handbook of Health Education,* pp. 53-76. P. M. Lazes, ed. Germantown, Md.: Aspen Systems, 1979.
(104) Lazes, P. M., Y. Wasilewski, and J. D. Redd. "Improving Out-Patient Care Through Participation: The Newark Experiment in Staff and Patient Involvement." *International Journal of Health Education* 20: 61–68, 1977.
(105) Georgopoulos, B. S., ed. *Organization Research on Health Institutions.* Ann Arbor: University of Michigan, Institute for Social Research, 1972.
(106) Howard, J., F. Davis, C. Pope, and S. Ruzek. "Humanizing Health Care: The Implications of Technology, Centralization, and Self-Care." *Medical Care.* 15:(5 Suppl.): 11–26, 1977.
(107) Mullen, P. D. "The Effects of Organizational Climate on Provider Attitudes Toward Consumer Rights." Department of Health Education, Group Health Cooperative of Puget Sound, Seattle, Washington, 1980.
(108) Katz, H. P. and R. Clancy. "Accuracy of a Home Throat Culture Program: A Study of Parent Participation in Health Care." *Pediatrics* 53: 687, 1974.
(109) Kemper, D. W. "Medical Self Care Education: Impact on HMO Costs." Paper presented at annual meeting of American Public Health Association. New York, November 5, 1979. (Available from Healthwise, Inc., 1612 N 13th St., Boise, Idaho 83702.)
(110) Greenlick, M. R. "Determinants of Medical Care Utilization: The Role of the Telephone in Total Medical Care." *Medical Care* 11: 121–134, 1973.
(111) Miller, L. and J. Goldstein. "More Efficient Care of Diabetic Patients in a County Hospital Setting." *New England Journal of Medicine* 286: 1388–1391, 1972.
(112) Katz, H. P., A. Mushlin, and J. Posen. "Quality of Telephone Care: Assessment of a System Utilizing Non-Physician Personnel." *American Journal of Public Health* 68: 31, 1978.
(113) Sayegh, J. and L. W. Green. "Family Planning Education: Programme Design, Training Component and Cost-Effectiveness." *International Journal of Health Education* 19 (Suppl.), 1976.
(114) Dauber, B., M. Falar, and P. J. Goldstein. "Abortion Counseling and Behavioral Change." *Family Planning Perspectives* 4: 26–27, 1972.
(115) Allen, D. B. and A. B. Bergman. "Social Learning Approaches to Health Education: Utilization of Infant Auto Restraint Devices." *Pediatrics* 58:3: 323–328, 1976.
(116) Reisinger, K. S. and A. F. Williams. "Evaluation of Programs Designed to Increase the Protection of Infants in Cars." *Pediatrics* 62: 280–287, 1978.

(*117*) Visintainer, M. A. and J. A. Wolfer. "Psychological Preparation for Surgical Pediatric Patients: The Effect on Children's and Parent's Stress Responses and Adjustment." *Pediatrics* 56: 187–202, 1975.
(*118*) Haynes, R. B., D. W. Taylor, and D. L. Sackett. *Compliance in Health Care*. Baltimore: The Johns Hopkins University Press, 1979.
(*119*) Harris, C., H. I. Cohen, L. W. Green, and S. Goodfriend-Resnick. "Cost-Benefit Analysis of an Asthma Self-Management Educational Program for Children." New York: Roosevelt Hospital, 1979.
(*120*) Lewis, C. E., M. A. Lewis, and M. Ifebwunique. "Informed Consent by Children and Participation in an Influenza Vaccine Trial." *American Journal of Public Health* 68: 1079–1082, 1978.
(*121*) Metsch, J. M. and J. E. Veney. "A Model of the Adaptive Behavior of Hospital Administrators to the Mandate to Implement Consumer Participation." *Medical Care* 12: 338–350, 1974.
(*122*) Danaceau, P. "Consumer Participation in Health Care: How It's Working." Arlington, Va.: Human Services Institute for Children, 1975.
(*123*) Clark, N. M. and M. Pinkett-Heller. "Developing HSA Leadership: An Innovation in Board Education." *American Journal of Health Planning* 2: 9–13, 1977.
(*124*) Metsch, J. M., A. Berson, and M. Weitzner. "The Impact of Training on Consumer Participation in the Delivery of Health Services." *Health Education Monographs* 3: 251–261, 1975.
(*125*) Blue Cross Association. White Paper: *Patient Health Education*. Chicago, Blue Shield Association, 1974.
(*126*) Health Insurance Association of America. *Financing In-Hospital Education: Proposed Criteria*. New York: Health Insurance Association of America, 1979.
(*127*) American Hospital Association. *Health Education: Role and Responsibility of Health Care Institutions*. Chicago: American Hospital Association, 1975.
(*128*) California Conference of Local Health Officers, Task Force on Medi-Cal Reimbursement of Patient Education of the Finance/Medical Committee. *Medical Reimbursement of Patient-Family Education*. February 1979. Unpublished.
(*129*) Korsch, B. M. and V. F. Negrete. "Doctor-Patient Communication." *Scientific American* 227: 66–74, 1974.
(*130*) Hayes-Bautista, D. "Modifying the Treatment: Patient Compliance, Patient Control and Medical Care." *Social Science and Medicine* 10: 233–238, 1976.
(*131*) Danziger, S. K. "Treatment of Women in Childbirth: Implications for Family Beginnings." *American Journal of Public Health* 69: 895–901, 1979.
(*132*) Freemon, B., V. F. Negrete, M. Davis, and B. M. Korsch. "Gaps in Doctor-Patient Communication: Doctor-Patient Interaction Analysis." *Pediatric Research* 5: 298–311, 1971.
(*133*) Ware, J. E., Jr. and M. K. Snyder. "Dimensions of Patient Attitudes Regarding Doctors and Medical Services." *Medical Care* 13: 669–682, 1975.
(*134*) Szasz, T. and M. Hollender. "A Contribution to the Philosophy of Medicine. The Basic Models of the Doctor-Patient Relationship." *American Medical Association Archives of Internal Medicine* 97: 585–592, 1956.
(*135*) Fink, D. L. "Tailoring the Consensual Regimen." In *Compliance With Therapeutic Regimens*, pp. 110–118. D. L. Sackett and R. B. Haynes, eds. Baltimore: The Johns Hopkins University Press, 1976.
(*136*) Sehnert, K. *How To Be Your Own Doctor—Sometimes*. New York: Grosset and Dunlap, 1975.
(*137*) Roter, D. L. "Patient Participation in the Patient-Provider Interaction: The Effects of Patient Question Asking on the Quality of the Interaction, Satisfaction, and Compliance." *Health Education Monographs* 5: 281–315, 1977.
(*138*) Korsch, B. M., B. Freemon, and V. F. Negret. "Practical Implications of Doctor-Patient Analysis for Pediatric Practice." *American Journal of Disabled Children* 121: 110–114, 1971.
(*139*) Kupst, M. J., K. Dresser, J. L. Schulman, and M. H. Paul. "Evaluation of Methods to Improve Communication in the Physician-Patient Relationship." *American Journal of Orthopsychiatry* 45: 420–429, 1975.
(*140*) Svarstad, B. "Physician-Patient Communication and Patient Conformity With Medical Advice." In *The Growth of Bureaucratic Medicine*, p. 220. D. Mechanic, ed. New York: John Wiley, 1976.
(*141*) Schulman, B. A. "Active Patient Orientation and Outcomes in Hypertensive Treatment: Application of a Socio-Organizational Perspective." *Medical Care* pp. 267–280, 1979.
(*142*) Warnecke, R. B., S. Graham, W. Mosher, E. Montgomery, and W. E. Schotz. "Contact With Health Guides and Use of Health Services Among Blacks in Buffalo." *Public Health Reports* 90: 213–222, 1975.
(*143*) Ackerman, A. M., K. B. Partridge, and H. Kalmer. "Health Education in Nursing Education: Myth or Reality?" *Journal of Nursing Education*. In press.
(*144*) Ackerman, A. M., K. B. Partridge, and H. Kalmer. "Effective Integration of Health Education into Baccalaureate Nursing Curricula." *Journal of Nursing Education*. In press.

(145) Bryant, N. H. "Consumer Health Education in a Medical School Curriculum." *Journal of Medical Education* 52: 587–588, 1977.
(146) Brieger, W. R. "Developing Service-Based Teaching in Health Education for Medical Students." *Health Education Monographs* 6: 345–358, 1978.
(147) Kahn, G., B. Cohen, and H. Jason. "The Teaching of Interpersonal Skills in the United States Medical Schools." *Journal of Medical Education*. In press.
(148) U.S. Bureau of Health Professions. *Grants for Graduate Training in Family Medicine: Draft Program Guide Fiscal Year 1981*. U.S. Department of Health and Human Services, Health Resources Administration, 1980.
(149) U.S. Bureau of Health Professions. *Grants for Residency Training in General Internal Medicine and/or General Pediatrics: Program Guide Fiscal Year 1980*. U.S. Department of Health and Human Services, Health Resources Administration, 1980.
(150) Inui, T., E. Yourtee, and J. Williamson. "Improved Outcomes in Hypertension After Physician Tutorials." *Annals of Internal Medicine* 84: 646–651, 1976.
(151) McAlister, A., C. Perry, J. Killen, L. A. Slinkard, and N. Maccoby. "Pilot Study of Smoking, Alcohol and Drug Abuse Prevention." *American Journal of Public Health* 70: 719–721, 1980.
(152) Perry, C., J. Killen, M. Tetch, L. A. Slinkard, and B. G. Danaher. "Modifying Smoking Behavior of Teenagers: A School-Based Intervention." *American Journal of Public Health* 70: 722–725, 1980.
(153) School Health Education Study. *Health Education: A Conceptual Approach*. Washington, D.C.: School Health Education Study, 1967.
(154) McDill, M. S. "Structure of Social Systems Determining Attitude, Knowledge, and Behavior Toward Disease: Micro Social Structures." In *Applying Behavioral Science to Cardiovascular Risk*, pp. 18–32. A. J. Enelow and J. B. Henderson, eds. American Heart Association, 1975.
(155) U.S. Office of Education, Health Education Program (Proposed Regulation). *Federal Register* 44 (115): 34024–34031, 1979.
(156) North Carolina Division of Health, Safety and Physical Education, Department of Public Instruction. *Life Skills for Health: Focus on Mental Health*, 1974.
(157) Miller, J. and D. Smith. *Web of Life*. Washington, D.C.: Department of Health, Education and Welfare, 1975.
(158) Parcel, G. S. "Skills Approach to Health Education: A Framework for Integrating Cognitive and Affective Learning." *Journal of School Health* 46:7: 403–406, 1976.
(159) Freeman, E. W., K. Rickels, G. R. Huggins, E. H. Mudd, C. R. Garcia, and H. O. Dickens. "Adolescent Contraceptive Use: Comparisons of Male and Female Attitudes and Information." *American Journal of Public Health* 70:8: 790–797, 1980.
(160) Zabin, L. S. "The Risk of Pregnancy to Adolescent Girls in Early Months of Intercourse." *Family Planning Perspectives*. In press.
(161) Zelnick, M. And J. F. Kantner. "Sexual and Contraceptive Experience of Young Unmarried Women in the United States, 1976 and 1971." *Family Planning Perspectives* 6: 8–14, 1977.
(162) U.S. Department of Health, Education, and Welfare, Bureau of Health Education, Center for Disease Control. *Focal Points*, September 1979.
(163) Zelnick, M. "Sex Education and Knowledge of Pregnancy Risk Among U.S. Teenage Women." *Family Planning Perspectives* 11: 355–357, 1979.
(164) Edwards, L. E., M. E. Steinman, and E. Y. Hackanson. "An Experimental Comprehensive High School Clinic." *American Journal of Public Health* 67: 765–766, 1977.
(165) Nader, P. R. "The School Health Service: Making Primary Care Effective." *Pediatric Clinics of North America* 21: 57–73, 1974.
(166) Parcel, G. S., P. R. Nader, and K. Tiernan. "A Health Education Program for Children with Asthma." Galveston, Tex.: The University of Texas Medical Branch at Galveston, Division of School Health and Community Pediatrics, Department of Pediatrics, 1979.
(167) Lewis, C. E., M. A. Lewis, and A. de la Sota. "Description of the Actions for Health Curriculum." Los Angeles: University of California at Los Angeles, Health Services Research Center, 1979.
(168) President's Council on Physical Fitness and Sports. *Physical Fitness and Exercise*. Draft Working Paper, 1979.
(169) American Academy of Pediatrics. "Committee on Pediatric Aspects of Physical Fitness, Recreation and Sports." *Guidelines for a Community Recreation & Sports Program*, April 1977.
(170) Jordan, C. V. and S. L. Valle. "Teenage Health Consultants." *Synergist* pp. 43–47, Fall 1978.
(171) Harrison, D. D. *Health and Safety for Young Children: Child Involvement in Personal Health*. New York: MacMillan, 1974.
(172) Kolbe, L. J. and D. C. Iverson. "Implementing Comprehensive School Health Education: Educational Innovations and Social Change." In proceedings of *Promoting Health Through the*

Schools, Denver, August 25–27, 1980. Washington, D.C.: U.S. Department of Health and Human Services, Office of Health Information and Health Promotion, 1980.

(173) Davis, R. "The PTA and Comprehensive Health Education: From Challenge to Action." *Focal Points*. U.S. Department of Health, Education, and Welfare, Bureau of Health Education, Public Health Service. Atlanta, January 1979.

(174) Castile, A. S. and S. J. Jerrick. *School Health in America, A Survey of School Health Programs*, 2nd ed. Kent, Ohio: American School Health Association, 1979.

(175) U.S. Federal Communications Commission. *FCC Feedback*, Washington, D.C., February 19, 1980.

(176) Smith, F. A., G. Trivax, D. A. Zuehlke, P. Lowinger, and T. L. Nghiem. "Health Information During a Week of Television." *New England Journal of Medicine* 286: 516–520, 1972.

(177) Kozlowoski, L. T. "Psychosocial Influences on Cigarette Smoking." In *Smoking and Health: A Report of the Surgeon General*, Chapter 18. U.S. Department of Health, Education, and Welfare, Office of the Assistant Secretary for Health, Office on Smoking and Health. Washington, D.C., 1979.

(178) Maccoby, N. and J. W. Farquhar. "Communication for Health: Unselling Heart Disease." In *Preventive Medicine, U.S.A.*, Appendix U, pp. 197–209. Fogarty International Center for Advanced Study in the Health Sciences, U.S. Department of Health, Education, and Welfare, National Institutes of Health, and American College of Preventive Medicine. New York: Prodist, 1976.

(179) U.S. Federal Trade Commission. *Staff Report on Consumer Responses to Cigarette Health Information*, Washington, D.C., August 1979.

(180) McKinlay, J. B. "A Case for Refocusing Upstream—The Political Economy of Illness." In *Applying Behavioral Science to Cardiovascular Risk*, pp. 7–17. A. J. Enelow and J. B. Henderson, eds. New York: American Heart Association, 1975.

(181) Marshall, C. L. *Toward an Educated Consumer: Mass Communication and Quality in Medical Care*. Fogarty International Center Series on the Tracking of Preventive Medicine, Vol. 7. Washington, D.C.: U.S. Government Printing Office, 1977.

(182) Lesser, G. *Children and Television: Lessons From Sesame Street*. New York: Random House, 1974.

(183) Mielke, K. W. and J. W. Swinehart. *Evaluation of the Feeling Good Television Series*. New York: Children's Television Workshop, 1 Lincoln Plaza, 1976.

(184) Rogers, E. M. and F. F. Shoemaker. *Communication of Innovations: A Cross-Cultural Approach*, 2nd ed. New York: The Free Press, 1972.

(185) Green, L. W. "Diffusion and Adoption of Innovations Related to Cardiovascular Risk Behavior in the Public." In *Applying Behavioral Science to Cardiovascular Risk*, pp. 84–108. A. J. Enelow and J. B. Henderson, eds. New York: American Heart Association, 1975.

(186) McAlister, A. and E. D. Berger. "Media for Community Health Promotion." In *Handbook of Consumer Health Education*, pp. 163–173. P. M. Lazes, ed. Germantown, Md.: Aspen Systems, 1979.

(187) Robertson, L. S., A. B. Kelley, B. O'Neill, C. W. Wixom, R. S. Eiswirth, and W. Haddon. "A Controlled Study of the Effect of Television Messages on Safety Belt Use." *American Journal of Public Health* 64: 1071–1080, 1974.

(188) Levanthal, H. "Fear Appeals and Persuasion: The Differentiation of a Motivational Construct." *American Journal of Public Health* 61: 1208–1224, 1971.

(189) Ubell, E. "Health Behavior Change: Political Model." *Preventive Medicine* 1: 209–221, 1972.

(190) Salzer, J. E., C. L. Marshall, and E. R. Glazer. "The Use of Cable Television as a Tool in Health Education of the Elderly: Screening." *Health Education Monographs* 5: 363–378, 1977.

(191) Grant, R. "Family and Self-Help Education in Rural Communities." *Health Education Monographs* 5: 143–160, 1977.

(192) Bivins, E. C. "Community Organization—An Old But Reliable Health Education Technique." In *The Handbook of Health Education*, pp. 109–120. P. M. Lazes, ed. Germantown, Md.: Aspen Systems, 1979.

(193) Milio, N. *9226 Kercheval—The Storefront That Did Not Burn*. Ann Arbor: University of Michigan Press, 1971.

(194) Mumm, E. E. "Hypertension Screening Through Extension Home Economics: A Case Study." *Health Education Monographs* 3: 50–55, 1975.

(195) Koskela, K., P. Puska, and J. Tuomilehto. "The North Karelia Project: A First Evaluation." *International Journal of Health Education* 19: 59–66, 1976.

(196) Gloucester Community Development Corporation. *Channel One Is Your Community*. Gloucester Community Development Corporation, P.O. Box 15, Gloucester, Mass., 1978.

(197) Watson, G. S., P. L. Zador, and A. Wilks. "The Repeal of Helmet Use Laws and Increased

Motorcyclist Mortality in the United States, 1975–1978." *American Journal of Public Health* 70:6: 586–592, 1980.

(*198*) Muller, A. "Evaluation of the Costs and Benefits of Motorcycle Helmet Laws." *American Journal of Public Health*, 70:6: 586–592, 1980.

(*199*) Silverstein, J. B. "Strategies for Improving Your Community's Oral Health." In *The Handbook of Health Education*, pp. 77–91. P. M. Lazes, ed. Germantown, Md.: Aspen Systems, 1979.

(*200*) Williamson, F. "Health Education and Health Promotion: Analysis of Health Systems Plans." *Focal Points*, September 1980.

(*201*) Public Health Service. Report to U.S. Congress from Secretary of Department of Health, Education, and Welfare, August 1979.

(*202*) U.S. Department of Health, Education, and Welfare, Steering Committee for the Development of Health Research Strategy. *Health Research Activities of the Department of Health, Education, and Welfare: Current Efforts and Proposed Initiatives.* U.S. Department of Health, Education, and Welfare Publ. No. (NIH) 79–2053, Washington, D.C.: U.S. Government Printing Office, 1979.

(*203*) Minkler, M. "The Use of Incentives in Family Planning Programs." *International Journal of Health Education* 3 (Suppl. 1), 1976.

(*204*) Evans, R. I., R. M. Rozelle, M. B. Mittelmark, W. B. Hansen, A. L. Baane, and J. Havis. "Deterring the Onset of Smoking in Children: Knowledge of Immediate Physiological Effects and Coping With Peer Pressure, Media Pressure, and Parent Modeling." *Journal of Applied Social Psychology* 8: 126–135, 1978.

(*205*) Becker, M. H., ed. "The Health Belief Model and Personal Health Behavior." *Health Education Monographs* 2: 324–508, 1974.

(*206*) Olesen, V. L. and E. W. Whittaker. *The Silent Dialogue.* San Francisco: Jossey-Bass, 1968.

(*207*) Benoliel, J. Q. "Childhood Diabetes, The Commonplace in Living Becomes Uncommon." In *Chronic Illness and the Quality of Life*, pp. 89–98. A. L. Strauss and B. G. Glasser, eds. St. Louis: C. V. Mosby, 1975.

(*208*) Davis, F. *Passage Through Crisis: Polio Victims and Their Families.* Indianapolis: Bobbs-Merrill, 1963.

(*209*) Mechanic, D. "Correlates of Physician Utilization: Why Do Major Multivariate Studies of Physician Utilization Find Trivial Psychosocial and Organizational Effects?" *Journal of Health and Social Behavior* 20: 387–396, 1979.

(*210*) Mullen, P. and R. Reynolds. "The Potential of Grounded Theory for Health Education Research: Linking Theory and Practice." *Health Education Monographs* 6: 280–294, 1978.

(*211*) Fishbein, M. and I. Ajzen. *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research.* Reading, Mass.: Addison-Wesley, 1975.

(*212*) Brown, S. S. *Policy Issues in the Health Sciences.* Institute of Medicine Publ. No. 77–002. Washington, D.C.: Institute of Medicine, 1977.

(*213*) Hemminki, E. and B. Starfield. "Prevention of Low Birth Weight and Pre-Term Birth." *Milbank Memorial Fund Quarterly* 56: 339–361, 1978.

SECTION II

NEEDED SERVICES

BACKGROUND NOTES ON VARIOUS APPROACHES TO DETERMINING HEALTH SERVICES NEEDED BY INFANTS AND CHILDREN, ADOLESCENTS AND PREGNANT WOMEN*

by
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We believe that the content of the papers on the health services needed by infants, children, adolescents, and pregnant women is of great significance to the total effort of the Select Panel for the Promotion of Child Health. The issues that these papers deal with will form a building block for the rest of the Panel's work, particularly because some of the crucial aspects often tend to be neglected.

These background notes argue for an approach that is broad enough to define needed services that reach beyond both current services and the arrangements for providing them. The kind of analysis we believe would be most useful would be grounded in what infants, children, adolescents, and pregnant women need for good health; would translate these health needs into service needs; and would point out the implications of an intention to provide such services for health system changes.

At this stage of health policy formulation, the approach which we believe will produce the most useful answers would not be circumscribed by current political, organizational, or payment mechanisms. Instead, the following would occur:

- The basis for identifying desirable services would be an assessment of needs of the population group, rather than any given list of services currently being provided.

*This paper was written early in the Panel's work, in order to provide guidance and a common framework for the preparation of the four papers which follow.

- The effectiveness of services and clusters of services would be assessed in ways that would clearly relate to the context in which services are made available, utilized, and paid for. Undoubtedly, the way services are organized and financed, and by whom they are delivered, are major factors in assessing their effectiveness as well as their costs and risks.
- The classification of a service as needed or desirable would consider equity, social usefulness, and consumer satisfaction, as well as measures of efficacy and effectiveness.

We believe that the broad approach we are advocating will produce two major conclusions that would not emerge from a narrower, more cost-effective-centered analysis. If true, these conclusions would have major impact on the Panel's deliberations and recommendations. Our hypotheses are the following:

(1) A significant proportion of services are not now being provided or utilized to the extent that they should be.

(2) Major changes are needed in prevailing organizational, financing, and personnel arrangements if the full range of desirable services are to be made available and used under acceptable conditions of cost and risk.

OBSTACLES TO A BROAD APPROACH TO IDENTIFYING NEEDED SERVICES

Of the many problems inherent in the way health services are organized, financed, and delivered, and in the way health programs are legislated, funded, and administered, cost and productivity are currently seen by most policy analysts and decisionmakers as the most troublesome; access is sometimes (although with decreasing frequency) also regarded as a major problem. But the question of what services ought to be provided because they are effective in meeting significant needs is seldom asked.

A somewhat related question—what benefits ought to be covered by third-party payers?--is frequently asked, but usually in a context that avoids the more profound issue of what services really are needed. In arriving at lists of benefits to be funded by third-party payments, policymakers under both public and private auspices tend to base their decisions on prevailing practice. For example, the drafters of various national health insurance proposals, in compiling their lists of proposed benefits, have relied heavily on benefits covered under Medicare, Medicaid, and typical Blue Cross-Blue Shield and commercial insurance plans. Rarely is the question of benefits related to the need for services.

A number of pressures militate against a broad, in-depth examination of the question of what services or interventions should be provided. We take note of these pressures in the hope that an awareness of them will increase the chances of their being surmounted in the work of the Select Panel for the Promotion of Child Health.

Reluctance To Make Policy Judgments

Policymakers tend to shy away from making judgments about what ought to be, especially if such judgments imply significant departures from current practice. Judgments of this kind carry major political and bureaucratic risks; a special sanctity is apt to be assigned to whatever is current practice. As a result, policymakers seem to prefer to take a less activist posture, along the lines of "what is available to most people should be available to more people." Support for the enactment of Medicare, for example, was mobilized around the argument that the kind of health insurance available to working people should also be available to old people; at the height of the Medicare debate in the early sixties there was little discussion of what services old people actually *need.* This reluctance also results in making the alternative of adopting a financing mechanism—especially one that will cover those services already being provided—appear to be a less intrusive (and therefore preferable) form of public policy than one which begins by a process of identifying those services that ought to be financed because they are of demonstrable value in relation to demonstrable needs.

Reliance on Market Mechanisms

In our health system, market mechanisms have worked to produce excellent, although often limited, health services for some population groups. Families and individuals who have the requisite money or insurance coverage, the necessary information to negotiate the system, and who live in places and circumstances that are attractive to physicians, can get excellent health care, especially for acute illness. The temptation, therefore, is to place an uncritical reliance on present or future market mechanisms to generate answers unlikely either to distribute resources to geographic areas that need them most (a matter not within the purview of this paper) or to make available an array of services well matched to the array of population needs.

The assumption of those who look to market mechanisms for needed answers is that there is a certain legitimacy to those services which individuals or their employers have purchased and to third-party reimbursement plans. This argument further assumes that services which are purchased or reimbursed are chosen by consumers in preference to other services or sets of services, and that they therefore come closer to meeting real consumer needs than any set of benefits that might be chosen by a duly constituted body of experts and representatives of the public.

The weakness of this argument lies in the fact that consumers of health services, individually or in groups, rarely possess the kind of information that equips them to make reasonable and rational decisions, largely because most consumers have had only a narrow range of choices available to them. For example, parents of children with asthma, juvenile-onset diabetes, or other chronic conditions, often assume (on the basis of

their experience with physicians who deal only with the narrow, medical aspects of their children's diseases) that it is unreasonable to expect their needs for counseling, advice, and support to be met by the health system.

The range of services currently available to most consumers may be only tangentially related to consumer preferences or health needs; they are more likely to be the products of such factors as the following:

- Whether they are the kinds of services which providers have been traditionally trained to administer (resulting in an emphasis on high-technology, in-hospital tertiary care services)
- Whether the services are expensive and unpredictable enough to conform to the principle of "the insurable risk," which third-party payers have traditionally underwritten in preference to coverage of more routine services that are more likely to be under some control of the insured
- Whether the services are relatively easy for third-party payers to define and to establish uniform standards for

Furthermore, a large proportion of advertising and other media messages, many aspects of our culture, and some parts of the medical world have persuaded large numbers of consumers to worship medical technology, to hope for the "magic bullet" that will cure, and to adopt a general outlook on life that is not conducive to consumers demanding—or sometimes even supporting—interventions which are aimed at anything short of rapid, miracle cures.

Interrelationship Between Service Needs and Delivery Arrangements

Another obstacle to a broad approach to identifying needed services is the complicated interrelationship between the question of what are desirable services and the arrangements under which services are delivered. If a need to finance and deliver a somewhat different set of services than those currently provided exists, it is difficult to avoid a recognition of the need for certain reforms in the way services are organized, delivered, financed, administered, and planned for. System changes, which are needed so that more appropriate services will be provided and utilized, may be of three kinds:

(1) Those where prevailing arrangements interfere with the actual provision of certain needed services (for example, paying doctors on a fee-for-service basis may discourage the provision of services which are not defined as "procedures"—such as parent counseling aimed at enabling a family to cope more effectively with a chronically ill child—as opposed to current reimbursement, which results in high fees for technology such as tympanometry or fiber optic gastroscopy).

(2) Those where prevailing arrangements interfere with economical or effective provision of a given service (for example, parent counseling aimed at improved family nutrition may be more cost-effective when done by a community health worker than by a physician).

(3) Those where prevailing arrangements or traditions tend to inhibit outreach to individuals and families who are reluctant to use needed services, or have difficulty in making good use of the services they need. (The tradition against "ambulance chasing" and the tendency to rely on the resources of individual practitioners working alone may get in the way of the effective and prompt identification of and intervention with high-risk neonates and handicapped children who can be helped today in ways quite undreamt of only a decade or two ago.)

Complications in Applying Measures of Efficacy, Cost Effectiveness, and Cost Benefits

A last hurdle that seems to inhibit a broad analysis of what services ought to be provided is a product of the way in which the concepts of efficacy, cost effectiveness, and cost-benefit or risk-benefit ratios are used.

In the current cost-cutting climate, it is tempting to focus on costs more than on efficacy, effectiveness,[1] and benefits. The spotlight tends to fall on the excesses of the current system, the services that tradition has sanctified despite little evidence of efficacy or effectiveness, but which can now be shown—on the basis of hard data—to carry high risks or costs and few, if any, benefits.

Most examples of successful cost-cutting by reducing "unnecessary services," have not, significantly, come out of the child health area. (The exception is tonsillectomies and adenoidectomies, which had been the major source of unnecessary surgery among children.) However, the relative invulnerability of children to the overuse of technology may be a phenomenon of the past. As new technological developments have made possible both miniaturization and a lesser degree of invasiveness—especially through the use of fiber optics, CT scans, and ultrasound—the appropriate use of technology in pediatrics is rapidly becoming a matter of increasing concern.

Any identification of needed services must include consideration of mechanisms to ensure that such lists, and policy decisions about the financing and delivery of care that are based thereon, be continually reviewed and revised on the basis of current information regarding efficacy and effectiveness. Efficacy has not been sufficiently utilized in the past as a criterion for providing or paying for services. More widespread use of efficacy criteria would be highly beneficial in health as well as economic terms.

Efficacy consideration must, of course, be employed both in the elimination of unnecessary (i.e., ineffective) services, *and* in judgments of what services should be more widely provided. To indicate the broad

[1] We refer to *efficacy* in discussing the effect of a particular intervention on an individual with a particular condition, and *effectiveness* to encompass the additional variables when the intervention is actually applied in routine clinical practice to a population.

spectrum of efficacy-related questions, let us simply suggest these examples:

- By what mechanism (administrative? professional?) should the desirability of universal screening of normal infants for such conditions as PKU or thyroxin T4 be determined?
- By what process should the desirability of making available or providing fetal monitoring to all women in childbirth, to high-risk women, or to women electing it, be determined?
- By what process, using the results of research and feedback from clinical trials, can the most recent advances in diagnosis and treatment be made most widely available in clinical practice? How can the necessary information be systematically made available to providers, consumers, and third-party payers so that all will be encouraged to utilize more efficacious, more economical, and less risky procedures?
- By what processes can such services as counseling and other nontechnical interventions be reasonably evaluated, recognizing that the interventions themselves, as well as their effects, are exceedingly difficult to measure with presently available tools and concepts?

The application of cost-benefit and effectiveness measures is particularly complicated regarding this last category of services. It may be fairly simple to calculate the cost of a half hour of "anticipatory guidance" to the mother of a young infant, provided by a physician or a nurse practitioner in the office, or by a public health nurse or lay health visitor at home, but the obstacles to evaluating the efficacy, let alone the cost benefit or cost effectiveness of the intervention, are formidable. Problems in the measurement of long-term outcomes present major theoretical and methodological problems, and even where convincing evaluation research can be contemplated, the high cost of carrying it out and the social control necessary to enable valid experimental inferences can raise additional questions of cost benefits and of the ethics of the research.

Many of the services that are responses to "the new morbidity," whether they are meant to deal with learning disorders, allergies, teenage pregnancy, child abuse, or the antecedents of adult illness, have not been well defined or standardized. No consensus exists about which categories of health workers provide any of the services most economically and effectively, or even whether some should be provided through the health system at all. Many of the most significant justifications for these interventions involve effects that may occur over long periods of time, and which we know very little about how to measure. (What kind of interventions are effective in avoiding obesity in children? Will effective interventions result in a decreased incidence of adult disease, in an improved self-image? To take another example, are there effective interventions that will lead to a decreased incidence of child abuse? Will they pay off in the prevention of violence a generation later?)

The critical policy issue that is raised by this category of services is simply this: Is there a way of looking at those services for which hard data on effectiveness are still incomplete, other than by dismissing them as "frills?" We must deal with these services in ways that will prevent their

exclusion from what may be classified as a "decent minimum" of services, because of the major impact such a classification would have on such matters as third-party payment policies; categorical grant payments policies; research funds; and policies regarding selection, training, and utilization of personnel.[2] At the same time we must guard against encouraging the provision of a wide variety of ineffective services by poorly trained people, which could result if payment were made available for an expanded array of services, under circumstances which are not wisely thought out and defined.

[2]A. L. Cochrane has written—wisely, in our view—that "cure is rare while the need for care is widespread, and . . . the pursuit of cure at all costs may restrict the supply of care."

A CHILD'S BEGINNING

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INTRODUCTION

A child's health, and the health of the adult the child subsequently becomes, are profoundly affected by the child's conception, gestation, and birth, and by the nurturing the child receives early in life. Being wanted, born well, and welcomed into a healthy family are essential for a child to begin life without compromise. This paper identifies and discusses important health services that support healthy reproduction and family formation.

The first section of this paper establishes a conceptual framework. This is followed by a description of some of the characteristics of American women that are likely to influence childbearing and child rearing. This section also describes the current status and trends of reproductive health in the United States. The third section enumerates and describes the health services needed to ensure healthy reproduction, a healthy baby, and healthy child rearing. Implications and controversies involving several of these health services are highlighted in the final section of this paper.

THE IMPORTANCE OF PARENTAL HEALTH

The physical and emotional health of parents, and the knowledge, attitudes, and skills they bring to parenthood significantly influence the care and nuturing provided to the newborn infant and growing child. The inextricable relationship between women's health, the quality of reproduction, and the health of children underlies the longstanding public health practice of considering "maternal and child health" together. Women play a central role in determining whether or not unwanted children are conceived and born. A woman's physical health and behavior during pregnancy and parturition have a unique and profound influence upon the development of the fetus and health of the newborn. Breastfeeding mothers provide the sole source of nutrition to their young infants. As the usual primary caretakers, mothers play important roles in establishing the family's emotional climate, making decisions about and obtaining health

care for their children, and influencing their children's daily living, dietary, and personal health habits.

Although mothers conceive, gestate, and bear children, there is little doubt of the importance of fatherhood, parenting, and the family in relationship to reproduction, child rearing, and child well-being. Substitution of "parental and child health" or "family health" for the traditional "maternal and child health" idiom more clearly acknowledges the importance of fathers and the family to the health of mothers and children. Nonetheless, the principal focus of this paper is on women of childbearing age, pregnant women, and their infants. Whenever appropriate, this paper will expand beyond this focus and consider family health concerns.

TARGET POPULATION CHARACTERISTICS AND HEALTH STATUS

Women of Reproductive Age

Changes in the roles and behavior of reproductive age women have a great influence on childbearing and child rearing. This section describes some of the social, economic, fertility, and health characteristics of American women that directly and indirectly influence our children's health.

Marital Status

Most American women marry; more than half marry before the age of 22 and by age 35, only 12 percent have never been married (*1*). A trend toward earlier marriage, which began in the early 1940's, is now being reversed. The median age of women who married for the first time in 1978 was 21.8 years (*2*).

Most women marry men of the same race, religion, and social class, and of the same or slightly older age (*1*). Women with very high or very low levels of education, that is, women who did not complete at least 5 years of elementary school (*including many who are mentally retarded*) and women with at least 1 year of post-baccalaureate education are least likely to marry (*4*).

The incidence of divorce is increasing for all age groups and races in the United States:

- The divorce rate for people less than 30 years old tripled between 1960 and 1970 (*2*); for women, the peak age for divorce is between 20 and 24 (*4*).
- Approximately one-third of all Americans now in their early 30's have been divorced or will divorce at some time in their lives (*3*).
- Divorce rates are higher for blacks, couples with no children, couples with low educational attainment, and couples with low incomes (*2, 3*).
- Couples of which both partners are college graduates are only half as likely to divorce as couples of which neither graduated from

high school (*3*); this may well be as related to low income and the stress associated with little income, as it is to education itself.

- The younger a woman is when she divorces, the greater the likelihood that she will remarry; remarriage is much more likely for a woman who divorces before age 30 and is more likely for women with no or few children (*3*).
- Second marriages are more than twice as likely to end in divorce as first marriages (*4*).

Almost one in four American women younger than 25 years of age who married for the first time between 1972 and 1976 began marriage pregnant or with an existing child (*5*). Almost 10 percent were already mothers before they married; 14.4 percent were at least 6 weeks pregnant on the day of their wedding. The younger a woman is at the time of her first marriage, the more likely it is that she is already pregnant. Almost one-third of brides 14-17 years old are pregnant, compared to only 6 or 7 percent of women who first marry at age 20–24 (*5*) the proportion of brides who were already pregnant increased between 1952 and 1971, after which it stabilized and even decreased for the 18- to 21-year-old group (*5*). Premarital conception is much more prevalent among black than white women; in 1977 the incidence of premarital conception among black women marrying for the first time was 38 percent compared to 7 percent among white brides (*5*). Marriage subsequent to a premarital conception predisposes couples to considerable economic disadvantage throughout much of their lives. These couples are also more likely than other couples to divorce (*6*).

Fertility

The annual number of births per 1,000 American women of childbearing age decreased sustantially between 1957 and 1976 (*7*). While the fertility rates for adolescents and women over age 39 continued to decrease in 1976–77, the decline in the overall U.S. fertility rate has leveled off since 1976 because of the higher fertility rates for women between 18 and 39 years of age (*8, 9*). A recent increase in first births to women between the ages of 25 and 34 may be accounted for in part by the trend away from early marriage (*8, 9*). The long-term trend toward lower fertility results from both the desire of an increasing number of Americans to have fewer children, and their increasing ability to prevent unwanted pregnancies and births. In 1967 the average American woman wanted to have three children; by 1976 most American women wanted and expected to have only two children (*9*).

The risk of a poor pregnancy outcome increases with increasing parity (*10–13*). Reduced parity has been postulated to be the single most important factor contributing to the continued downward trend in infant mortality in the United States (*13, 14*).

Despite these trends, the Bureau of the Census has projected that, barring drastic economic changes, the number of babies born each year will increase over the next decade because of the increased number of young women entering the childbearing years. In 1977 3.3 million babies were born; 4 million births are predicted for 1990 (*15*).

White women in this country have always experienced lower fertility than black women. While fertility rates for both white and black American women have declined since 1957, the decline has been steeper among white women (*7*). Studies show that this persistent racial differential is not due to a desire for larger families on the part of black women. Rather, a greater proportion of births to black women are unintended, and among black women there is a tendency toward starting sexual activity, and thus childbearing at an earlier age (*16*). Complete childlessness, however, is also more prevalent among black than among white women (*9*).

Childbearing by single women is increasing in the United States. Between 1976 and 1977 infants born to unmarried women increased by 10 percent. This increase results, in part, from a 5 percent increase in the rate of childbearing by unmarried women of fertile age, and from the increasing age at marriage, which inflates the number of single women in the population. Out-of-wedlock fertility is increasing among all age groups except for women younger than 15 or older than 39. Although more than half of the out-of-wedlock births occur to teenagers (*9*) with largest increase in such births between 1976 and 1977 was among women age 20–24 (*8*). The fertility rate for single black women age 18–44 is nine times higher than that for single white women of the same ages (*17*).

Timing of Pregnancy and Child Spacing

The age at which a woman becomes pregnant may adversely affect her offspring. Pregnancies at either extreme of the childbearing age range are associated with poorer outcomes (*11, 13, 14*). In 1977 only 18 percent of all U.S. births, and only 7 percent of first births were to women age 30 or older; 4 percent of all births were to women over the age of 34, and 17 percent of births were to teenagers (*8*).

The interval between pregnancies may influence both the outcome of a pregnancy and ability of the parents to meet their infant's needs. Too short an interval may not allow sufficient time for the mother's body to recover from the nutritional and other biological stresses of pregnancy (*18*). In addition, subsequent births may occur at a time when the young family has not yet fully adapted to the changes and demands of the previous child. An interpregnancy interval shorter than 24 months and longer than 48 months is associated with a higher incidence of low birth weight (*18*). While the mean interval between births is increasing slightly for both black and white American women and is currently longer than at any time since World War II (*9*), 25 percent of second births occur less than 2 years after the birth of the first child (*8*).

Adolescent Sexuality and Childbearing

Attainment of female puberty has been occurring earlier with each generation. However, despite the earlier onset of biological readiness to conceive, today's teenage girls are less likely than teenagers of only a few years ago to either marry or to have a child while they are still in their teens (*9*). The fertility of 16- to 19-year-olds decreased between 1957 and

1976, although to a somewhat less marked degree than among older women. Birth rates for girls younger than 16 rose steadily from the early 1930's until they peaked in 1973. Fertility among teenagers of all ages has been decreasing since 1974 (*19*), with the rate of decline being greater among black than among white teenagers.

Comparison of findings from national surveys of 15- to 19-year-old never-married women conducted in 1971 and 1976 document increasing sexual activity by teenaged girls. As compared to the 1971 study, the 1976 study found a 30 percent increase in the percent who had ever had sexual intercourse, with increases for both black and white teenagers of every age (*16*). Among those who had ever had sexual relations, the survey found no increase in the frequency of sexual relations, but an increase in the number of sexual partners and a somewhat earlier median age at first intercourse (four months earlier than in 1971). There were substantial increases in the percentages of both black and white teenagers who always used contraception (30 percent in 1976, compared to 18 percent in 1971) and, paradoxically, moderate increases in the proportion who never used contraception (26 percent in 1976, compared to 17 percent in 1971). Among those surveyed who ever used contraception, there was a marked shift from use of the least effective methods to use of the most effective methods. Analysis of data from the 1976 study indicates that half of all teenage conceptions occur in the first 6 months of the girl's sexual experience (*20*).

Adolescent pregnancies, "children having children," are associated with increased jeopardy to both the mother and the newborn. Maternal morbidity and mortality is higher among adolescents, and their newborns are at a higher risk of being born prematurely or with a low birth weight. Low-birth-weight infants have reduced survival chances and greater risks of serious neurological impairment (*21*). Adolescent motherhood is associated with lowered educational and occupational attainment, reduced income, and increased likelihood of welfare dependency. A Chicago-based study found that children of mothers who began childbearing at age 17 or younger are less likely than children of older mothers to adapt well to school (*22*). Analysis of several large U.S. data sets shows a small but consistent effect of maternal age on children's IQ's., with children of older mothers doing better (*22*). All teenagers are not the same. The "problem" of teenage pregnancy is important to disaggregate the individual age groups. Women 18 and 19 years old have pregnancy outcomes similar to women in their early twenties. Younger teenagers and their infants are at greater risk for untoward outcomes. Interruption of, or failure to complete, high school, a distinct disadvantage with profound future consequences, is obviously limited to adolescents who become pregnant while still in school. Inadequate preparation for the responsibility of parenthood is, however, prevalent among adolescents of all ages.

Family Planning and Unintended Births

The vast majority of married couples in America use effective contraceptive methods. As of 1976, all but 7.7 percent of married couples were either using a contraceptive method or did not need contraception

because one or both spouses were sterile or because the wife was pregnant, postpartum, or trying to conceive. Although the pill is still the most common method of temporary contraception, it is losing popularity. Voluntary sterilization is becoming increasingly popular (*23*). Among couples who rely on surgical sterilization as their method of contraception, an equal proportion of men and women have been sterilized; male sterilization, however, is becoming the preferred choice.

Contraceptive utilization is related to income and race. Low-income and black married women are less likely than higher income and white married women to use any method of contraception. Among black couples, especially those with low incomes, there was a substantial increase in reliance on nonmedical and folk methods between 1973 and 1976 (*23*). During that same period there was a dramatic increase in the prevalence of surgical sterilization among white couples, but not among blacks (*23*). Among white couples, husbands are more likely than wives to be sterilized; among black couples the wives are more likely to be sterilized (*24*). A significant part of the racial difference in the proportion of married couples using no method of contraception and risking unplanned pregnancies is due to fewer voluntary surgical sterilizations among black husbands. The proportions of couples using each of the other methods are approximately the same regardless of race (*23*).

Preliminary analysis of data from the 1976 National Study of Family Growth indicates that about 10 percent of births during the prior 3 years occurring to married women and single mothers living with their children resulted from pregnancies that were unwanted by these women at the time of conception (*25*). An additional 25 percent were babies the mothers wanted to have at some time, but which came too early in the mothers' lives (*25*). Unintended births are disproportionately concentrated among the poor, blacks and other racial minorities, and adolescents. The problem is especially severe among women who have all of these characteristics.

Abortion

The increasing incidence of legal abortion attests to the large number of unwanted and ill-timed pregnancies. Following the 1973 Supreme Court decisions on abortion, the incidence of legal abortion in the United States rose dramatically. An estimated 1.5 million abortions, or 1 abortion for every 3 live births now occur annually. Three-quarters of the women who have abortions are not married at the time of the abortion, although in 1977 more than half (52 percent) had children. Approximately one-third of all abortions are obtained by teenagers (*26*).

Although women at the extremes of the reproductive age span have the lowest pregnancy rates, they are more likely than other women to have their pregnancies terminated by abortion (*26*).

- For every 10 girls younger than age 15 who have a baby, there are 12 who have legal abortions.
- Women 40 years of age or older have seven abortions for every 10 live births, whereas women between ages of 25 and 29 have only two abortions for every 10 live births.

The incidence of abortion also varies according to race. Approximately one of every three pregnant black women and one of every five pregnant white women have their pregnancies aborted (*26*).

Part of the observed reduction in maternal and infant mortality is probably related to the increased availability of legal abortion (*27*), since a higher proportion of unwanted pregnancies occurs among women who are at increased risk for poor pregnancy outcomes (*28–30*).

Poverty and Women as Heads of Households

In 1970, 85 percent of children under the age of 18 lived with two parents. By 1978, only 78 percent were living with two parents, and only 67 percent lived with both their biological parents (*2*). If current trends continue, almost half of all children born in the United States this year will most likely spend a significant portion of their childhood living with only one parent. In about 92 percent of these cases, that parent is the mother, a percentage that does not appear to be decreasing (*2*).

In 1975–76, almost 10 percent of white children, 17 percent of Spanish surname children, and 35 percent of black children were living in households headed by never-married or divorced women (*4, 31*). Such households are increasing. The number of American families maintained by divorced or never-married women doubled during the 1970's (*17*).

Families headed by women without husbands are, in general, poorer than other families. Many women who head households are less likely to work because of their responsibilities for child care. Most such women are separated or divorced (*17*). Only about 44 percent of divorced fathers are ordered to pay child support, and less than half of them do so regularly (*32*). Almost half of all poor families in this country are headed by women without husbands (*17*). In 1977, there were about 1 million poor, unemployed female heads of households with children under 18 years of age; children less than 6 years of age lived in approximately 660,000 of these women-headed households (*17*).

Current welfare laws may contribute to the problems of poverty and lack of access to vital health services. Poor intact families, those with both a mother and a father in the home, are not eligible for Aid to Families with Dependent Children (AFDC) and are therefore ineligible for Medicaid in most States. Insufficient childcare services prevent many women from working (*33*).

Educational Attainment

The educational status of American women is improving. Approximately three-quarters of the women who had their first child in 1977 were high school graduates; 80 percent of the men who became fathers for the first time in 1977 were high school graduates (*8*). The number of female college graduates in the population increased by 57 percent between 1970 and 1978, bringing the total percentage of women over the age of 25 who had graduated from college to 12 percent in 1978 (*17*). Since higher

educational attainment by the mother is associated with an improved pregnancy outcome, these statistics are encouraging (*10*).

Working Women

Until recently, labor force activity was concentrated in one stage of most women's life cycles; marriage and reproduction were concentrated in another. Only a few women were simultaneously workers, wives, and mothers. In recent years, there has been a dramatic surge of women entering the labor force. Nearly half of the women of working age are either employed outside of their homes or are actively looking for jobs (*17*). Over 60 percent of women between the ages of 25 and 34 are in the work force; 60 percent of wives work (*17*). Labor force participation by mothers is increasing. In 1978, 42 percent of mothers with preschool children under 6 years of age and 57 percent of mothers of school-age children 6–17 years old were working or looking for work (*17*). Many of these women earn poor incomes, especially as compared to men; for year-round full-time workers in 1977, the median income for women was $8,810, compared to $15,070 for men (*17*).

While the term "working women" usually refers to women who work away from the home, the job of working in the home should also be considered. Housework can be strenuous and time consuming with great demands and responsibilities. Women almost always retain responsibility for the overall management of the household (*34*). In addition, women who also work outside of the home continue to bear the major responsibility for their traditional family duties, even when preschool children are present (*35, 36*).

In 1977, an estimated 1 million infants were born to women who were employed during pregnancy (*37*). Studies conducted in England at the end of World War II showed that pregnant women who worked outside of the home and who continued working past the 28th week of pregnancy had poorer pregnancy outcomes than housewives; among working women the incidence of low-birth-weight (LBW) infants was 11.1 percent and the perinatal mortality was 4.9 percent, as compared to 4.7 percent LBW infants and 2.8 percent perinatal mortality for the housewives (*38*). The risks associated with pregnant women working, especially late in pregnancy, continue to require careful consideration and examination of working conditions for women today.

Greater participation in the Nation's work force increases women's exposure to workplace hazards (*39*). Although many hazards affect men and women more or less equally, during pregnancy the developing fetus may be particularly susceptible to environmental insult (*40, 41*). Exposure of either men or women to certain environmental hazards can lead to sterility or genetic abnormalities that are generally not detectable prenatally. Occupational and other environmental hazards have been linked with spontaneous abortion, stillbirth, congenital malformation, and the occurrence of certain kinds of cancers during the early years of childhood. For some environmental agents—lead, mercury, or ionizing radiation—such relationships are relatively well established;(*42*) for others, they are strongly suggested (*43*), as in recent epidemiologic studies

of men and women frequently exposed to anesthetic gases in operating rooms (*44*). Few data are available that would permit a comprehensive evaluation of the extent to which employed pregnant women may be exposed to health risks associated with specific work environments (*39, 45, 46*).

Cigarette Smoking

Smoking by the mother retards the rate of fetal growth and increases the risk of spontaneous abortion, fetal death, and neonatal death in otherwise normal infants (*47–49*). The risk of having a low-birth-weight baby is doubled if the pregnant woman smokes (*50*). Children born to women who smoke during pregnancy apparently do not catch up in later life with the growth rate and achievement levels of children of nonsmoking mothers (*48*). The proportion of adult women who smoke increased from 25 percent in 1955 to 32 percent in 1965, after which it declined to about 28 percent in 1978. However, the proportion of teenage girls who smoke has greatly increased and teenage girls may now be more likely than teenage boys to smoke (*48*). Although the proportion of adult women who smoke has decreased slightly, there has been an increase in the average number of cigarettes smoked per day by women who do smoke, with approximately 23 percent of female smokers usually smoking more than a pack of cigarettes each day (*48*).

Mental Health

More women than men at every age over 15 receive treatment for mental health problems. Depression is the most prevalent problem. While the same factors are associated with high rates of depression in both women and men—poverty, stressful life events, and inadequate social supports—among men and women who experience similar adverse circumstances, women are more likely to become depressed (*51*). Studies indicate that working outside the home appears to offer women some protection against depression (*52*). Although marriage is associated with lower rates of depression among men, depression is more common among married than single women (*53*). Among married women, those living with young children are more likely to be depressed than women without children. These are not minor or inconsequential depressions. They often form a long-term pattern of severe emotional symptoms that are frequently associated with physical distress (*52*). Suicide is a leading cause of death for young women (*54*).

The peak ages for depression among women, 25 to 44 years, are the ages most likely to coincide with childrearing responsibilities (*51*). More than 4,000 women a year are hospitalized for postpartum psychiatric care (*34*). Depressed mothers are more likely to be dominating, hostile or aggressive in dealing with their children. The children of depressed women tend to report unhappiness in their relationships with their mothers, are less likely than other children to turn to their mothers for support, and have themselves an increased risk of emotional disorders (*55, 56*).

Health Services Utilization

Women between the ages of 17 and 64 make more visits to doctors than men of a comparable age. Younger and older women utilize physician services at about the same rate as men (*57*). Although women are more likely than men to have a regular source of health care (85 percent of women compared to 76 percent of men), they are also more likely than men to perceive that they have unmet health needs. Among people without a regular source of health care, women are more likely than men to indicate that they are unable to find the right doctor (*58*). Before menopause, women receive health care primarily from obstetrician-gynecologists. After age 45 they are cared for primarily by internists and family physicians (*59*).

Pregnant Women

Maternal Mortality

Fear of dying is no longer a primary concern of pregnant women, as it was at the beginning of this century. Reduction in high-parity births, advances in medical science, and improved nutrition and general health have dramatically reduced maternal mortality to a rare occurrence. In 1915, there were 600 maternal deaths per 100,000 live births in the United States attributed to complications of pregnancy, childbirth, and the puerperium, compared to the 1978 provisional maternal mortality rate of almost 10 deaths per 100,000 live births (*60*). However, racial disparity in U.S. maternal mortality continues. The maternal mortality rate for nonwhite American women is three times higher than the rate for white women (*60*). In addition, changing delivery practices could increase maternal mortality in the future (*61*).

Prenatal Care

Although there has been an increase in the proportion of pregnant women who receive prenatal care and a shift toward earlier prenatal care, many still do not receive adequate care during pregnancy (*54*). Women in subgroups of the population, however, are much less likely to receive early or any prenatal care. Those women whose babies are at the greatest risk—very young or older women, black women, and poorly educated women—are less likely to receive early and frequent care during pregnancy than are those groups of women for whom the risk is less.

- 68 percent of the women who gave birth in 1970 made their first prenatal care visit during the first trimester of their pregnancy; by 1977, this proportion had increased to 74 percent (*54*).
- 77 percent of the white mothers who delivered babies in the United States in 1977 began prenatal care in the first trimester of pregnancy, compared to only 59 percent of the black mothers (*54*).

- Black mothers were more than twice as likely as white mothers to receive no prenatal care (*54*).
- Women between 25 and 34 years of age are most likely to get early care (81 percent began prenatal care in the first trimester in 1975), and are least likely to get no prenatal care (0.8 percent in 1975) (*62*).
- Girls 15 to 19 years of age are least likely to receive early prenatal care (only 53 percent began prenatal care in the first trimester in 1975), and are most likely to have no prenatal care at all (2.3 percent in 1975) (*62*).

Pregnancy Outcomes

Infant Morbidity and Mortality

The chances of being born alive and surviving the first year of life have steadily improved in the United States. The 1979 U.S. infant mortality rate (IMR) of 13.0 infant deaths per 1,000 live births was 4.4 percent lower than the previous year. However, despite continued and steady progress, the fate of an infant born in this country today is by no means assured. In the United States in 1979:

- 44,200 infants died before reaching 1 year of age.
- 241,000 infants were born weighing less than 5.5 pounds.
- 250,000 infants were born with moderate to severe congenital defects.

Fifteen other countries have lower rates of infant mortality than the United States.

Moreover, within this country population subgroups continue to have high infant mortality rates. Disparity exists according to race and ethnic origin. A black child born in this country has almost double the risk of dying before ever celebrating a first birthday, when compared to the survival chances of a white infant born during the same year. The 1977 infant mortality rate for white infants was 12.3 infant deaths per 1,000 live births, while the black infant mortality rate was 23.6 infant deaths per 1,000 live births, an infant mortality rate that was recorded for white infants more than 25 years earlier. National data on Hispanic infant mortality is not readily obtainable because Hispanic vital statistics are not disaggregated from the "white" category. Consequently, specific national information is currently unavailable for the largest ethnic minority in the United States. (The National Center for Health Statistics has indicated that they will be reporting Hispanic data as a separate category beginning with 1980 vital statistics.)

Geographic pockets of high infant mortality generally correspond to areas with concentrations of impoverished people. In 1975–77, Mississippi recorded the highest state resident infant mortality rate, 20.6 infant deaths per 1,000 live births, and Maine recorded the lowest, 11.2 infant deaths per 1,000 live births. The District of Columbia's 1977 infant mortality rate of 27.4 was the highest recorded that year for any American city or State.

Table 1 documents a 31 percent decline in mortality for white infants between 1970 and 1977, and a 28 percent decline for blacks. The "black–white ratio," a statistic that compares the variance between the white and black infant mortality rates, shows that the gap between white and black infant mortality has been widening since 1973. The neonatal (table 2) and postneonatal (table 3) mortality rates reveal more precisely where the disparity exists.

- Neonatal mortality rates for white infants declined by 37 percent between 1970 and 1977; for blacks the decline was only 29 percent. Changes in the black–white ratio indicate a steady increase in the disparity between white and black neonatal mortality.
- Postneonatal mortality rates for white infants declined only 10 percent between 1970 and 1977, compared to a 23 percent decline for blacks. Changes in the black–white ratio show that the gap between white and black postneonatal mortality is narrowing.
- There is greater white–black disparity for postneonatal than for neonatal mortality.

To the extent that neonatal mortality reflects prenatal and perinatal circumstances and events, and postneonatal mortality reflects parenting and other aspects of the infant's environment, different intervention strategies are required to reduce these two components of infant mortality (*63*). Prenatal care with risk assessment and management (described in detail in a later section) and newborn intensive care are both directed at reducing hazardous conditions that threaten the infant primarily during the neonatal period. Instruction to new parents, especially new mothers, in the routine care and feeding of their infants and in identifying infant illness symptoms is an example of a prevention-intervention strategy to reduce postneonatal infant illness and death.

TABLE 1. Infant Mortality Rates According to Race in the United States: 1970 to 1979
(Infant deaths under 1 year of age per 1,000 live births)

Year	All Races	White	All Other	Black	Black/White Ratio
1970	20.0	17.8	30.9	32.6	1.83
1971	19.1	17.1	28.5	30.3	1.77
1972	18.5	16.4	27.7	29.6	1.80
1973	17.7	15.8	26.2	28.1	1.78
1974	16.7	14.8	24.9	26.8	1.81
1975	16.1	14.2	24.2	26.2	1.85
1976	15.2	13.3	23.5	25.5	1.91
1977	14.1	12.3	21.7	23.6	1.92
1978(est.)	13.6	—	—	—	—
1979(est.)	13.0	—	—	—	—

SOURCE: National Center for Health Statistics.

TABLE 2. Neonatal Mortality Rates According to Race in the United States: 1970 to 1978 (Infant deaths under 28 days of age per 1,000 live births)

Year	All Races	White	All Other	Black	Black/ White Ratio
1970	15.1	13.8	21.4	22.8	1.65
1971	14.2	13.0	19.6	21.0	1.62
1972	13.6	12.4	19.2	20.7	1.67
1973	13.0	11.8	17.9	19.3	1.64
1974	12.3	11.1	17.2	18.7	1.69
1975	11.6	10.4	16.8	18.3	1.76
1976	10.9	9.7	16.3	17.9	1.84
1977	9.9	8.7	14.7	16.1	1.85
1978(est.)	9.4	—	—	—	—

SOURCE: National Center for Health Statistics.

TABLE 3. Postneonatal Mortality Rates According to Race in the United States: 1970 to 1978 (Infant deaths 28 days to 365 days of age per 1,000 live births)

Year	All Races	White	All Other	Black	Black/ White Ratio
1970	4.9	4.0	9.5	9.9	2.45
1971	4.9	4.1	7.9	9.3	2.27
1972	4.9	4.0	8.5	8.9	2.23
1973	4.7	4.0	8.3	8.8	2.20
1974	4.4	3.7	7.7	8.1	2.19
1975	4.5	3.8	7.4	7.9	2.08
1976	4.3	3.6	7.2	7.6	2.11
1977	4.2	3.6	7.0	7.6	2.11
1978(est.)	4.2	—	—	—	—

SOURCE: National Center for Health Statistics.

Low Birth Weight

Survival is not the sole criterion for assessing pregnancy outcomes. Many conditions carry potentially hazardous consequences even in the absence of a fatal outcome (*64, 65*). Low birth weight (LBW), a birth weight of less than 5½ pounds (2,500 grams), is the most significant newborn characteristic associated with a poor prognosis; that is, increased perinatal and infant mortality and morbidity, including adverse sequelae such as mental retardation and learning disabilities (*65*). Low-birth-weight infants face a fortyfold greater chance of dying before 1 month of age and are 20 times more likely than heavier newborns to die before their first birthday.

Infants born in the United States in 1978 had a median birth weight of 3,350 grams (approximately 7 pounds 6 ounces). The median weights for white and black babies were 3,390 and 3,150 grams respectively, a difference of about 8 ounces. Approximately 235,000 low-birth-weight infants were born in the United States in 1978, representing 7.1 percent of all live births.

LBW babies are of two types:

(1) Infants born prematurely (before 38 weeks of gestation), who weigh less than 5½ pounds

(2) Full-term infants who weigh less than 5½ pounds at birth, referred to as small-for-gestational-age (SGA)

Prematurity results from the untimely onset of labor which results in an abbreviated gestational period precluding complete maturation. SGA babies are dysmature; they are less mature than would be expected considering full-term gestation. These babies lack the nutritional stores and reserve capacity of infants of normal weight. Placental insufficiency, inadequate blood flow through the placenta resulting in inadequate transport of nutrients from mother to fetus, is primarily responsible for the intrauterine fetal deprivation that results in an SGA newborn. Although these two types of LBW require different approaches for successful intervention, low birth weight of either type is an important indicator and predictor of immediate postnatal problems and compromised future health.

Women with certain characteristics—previous miscarriages or stillbirths, short intervals between pregnancies, late or no prenatal care, and women who are black, unmarried, not high school graduates, or under 18 years of age or over 35 years of age—are more likely than other mothers to have low-birth-weight babies (*65, 67*). In 1977, women between the ages of 25 and 29 had the lowest proportion of LBW babies, 5.8 percent, whereas more than 9 percent of babies born to women under the age of 20 or over the age of 39 weighed 2,500 grams or less. In 1978, the incidence of low birth weight was twice as high for black babies as it was for white babies, even when the differences in the mother's ages are considered.

The incidence of LBW declined 10 percent between 1970 and 1978 (table 4). During the same period the infant mortality rate declined much more sharply—by 32 percent. The disproportionate decline in infant mortality may be explained in two ways. First, because an estimated 65 percent of infants who die in the United States each year are LBW, a small change in the incidence of LBW results in a large improvement in infant survival. Second, significant advances in perinatal and neonatal medicine have made it possible to save the lives of many low-birth-weight infants (*64, 68, 69*).

These improvements are reflected in significant reductions in birth weight-specific mortality rates observed at a number of neonatal intensive care centers.

Sweden has the world's lowest infant mortality rate. While the United States ranks far below Sweden, the 1973 *birth-weight-specific* infant mortality rates in six selected States in the United States were lower than in several other industrialized nations including Sweden (*70*). Low-birth-weight infants born in the United States have much greater survival

chances principally because neonatal intensive care in the United States is unsurpassed (*64, 68, 71, 72*). Our infant mortality rate is higher than that in 15 other countries because a higher proportion of U.S infants are LBW, and not all of them have access to neonatal intensive care.

TABLE 4. Incidence of Low-Birth-Weight (LBW) Infants According to Race in the United States: 1970 to 1978 (percent of births)

Year	All Races	White	All Other	Black	Black/ White Ratio
1970	7.9	6.8	13.3	13.9	2.04
1971	7.7	6.6	12.7	13.4	2.03
1972	7.7	6.5	12.9	13.6	2.09
1973	7.6	6.4	12.5	13.3	2.08
1974	7.4	6.3	12.4	13.1	2.08
1975	7.4	6.3	12.2	13.1	2.08
1976	7.3	6.1	12.0	13.8	2.26
1977	7.1	5.9	11.9	12.8	2.18
1978	7.1	5.9	11.9	12.8	2.18

NEEDED HEALTH SERVICES[1]

As noted previously, the lifetime health experience of both the mother and father can affect the health of their children; healthy people are more likely to have healthy offspring. This section concentrates on the health services related to conception, gestation, birth, early life, and parenting. Some of the listed services would benefit every woman, newborn, or parent; others are not needed by everyone; still others address the needs of especially vulnerable families.

In Anticipation of Pregnancy

(1) Health education conducted at the school, the health-care delivery site, and through the mass information and entertainment media, especially television, beginning at the preschool level and continuing throughout life with particular emphasis on the following:

- Knowing the needs of one's own body, such as the composition of a healthy diet and requirements for exercise, sleep, and relaxation.
- Identifying activities that promote health and prevent disease and disability.
- Family life and sex education, including accurate information about contraception.
- Awareness and understanding of the menstrual cycle and knowledge of the signs and symptoms of pregnancy.

[1]This section is derived from several references in addition to the composite experience of a nurse midwife, an obstetrician-gynecologist, and a pediatrician. These health services are primarily derived from the needs ascribed by the relevant characteristics of women of childbearing age.

- The potentially harmful effects of communicable diseases, alcohol, ionizing radiation, drugs, and smoking especially during the early weeks of pregnancy (women attempting to conceive should consider themselves as potentially pregnant even before the precise recognition of pregnancy and should avoid these hazards).
- The need for preventive health services, especially early prenatal care.

(2) Nutrition services, including nutritional counseling and information about the availability of food assistance programs such as Food Stamps.

(3) Quality medical care services for the detection, diagnosis, and treatment of acute and chronic diseases, including sexually transmissible diseases, and immunization against preventable illness, especially rubella.

(4) Mental health services, including crisis intervention services, continuous services for management of sustained distress, and prevention of emotional and social problems through supportive services in anticipation of known stressful life crises, e.g., premarital and marital counseling. Mental health services can be provided in a variety of settings, including private offices, clinics, hospital outpatient departments, neighborhood health centers, or wherever individuals obtain their regular health care. Providers may include trained professionals other than psychiatrists or psychologists.

(5) Pregnancy testing with referral, as appropriate, for counseling, family planning, abortion, prenatal care, or infertility diagnosis and treatment.

(6) Family planning services including information, counseling, and outreach to schools, community groups, and youth organizations; wide-scale advertisement, sales (including vending machines), and free distribution of nonprescription contraceptive methods; information, counseling, and provision of condoms to males, especially in connection with sexually transmissible disease control services; clinical contraceptive services in family planning programs and incorporated into regular comprehensive health services, and voluntary sterilization for both men and women; (State laws that prohibit the provision of family planning services to adolescents are an obstacle to teenagers seeking care.)

(7) Genetic screening and counseling, especially for population groups known to be at special risk for specific genetic diseases

From the Recognition of Pregnancy to the Onset of Labor

(1) Prenatal Care Services:
- Identification, treatment, and management of any physical and/or mental health conditions existing before pregnancy.

- Continuing assessment of the pregnant woman and fetus directed at prevention, early detection, and management of potentially threatening conditions, e.g., screening for hypertension, diabetes, Rh isoimmunization, anemia, abnormal fetal development, and unusual emotional stress.
- Screening, diagnosis, and counseling for fetal genetic disorders, with counseling and second-trimester abortion services available as desired by the parents.
- Early identification of the actual or potential high risk pregnancy with arrangements for appropriate prenatal, intrapartum, and newborn care based upon the risk status of the pregnant woman and her fetus; and transportation of the pregnant woman and her intrauterine passenger to a facility capable of the appropriate level of care as necessary. (Approximately two-thirds of high risk newborns can be anticipated by careful antepartum evaluation. This enables the mustering of resources and planning for necessary care well in advance of the birth, thereby preventing many complications.)
- Information, support and counseling, as needed, on the marital relationship, relationships between the parents and other children in the family, and other associated emotional and social changes coincident with pregnancy and birth to assist the woman and her family to make healthy adaptations to the effects of pregnancy and approaching parenthood.
- Continuing education to enable the pregnant woman to adopt behaviors that serve to protect and promote the health of the fetus, e.g., optimal nutrition, avoidance of occupational and environmental hazards, limiting X-ray exposure, eliminating the use of cigarettes, alcohol, and teratogenic drugs, avoiding exposure to sexually transmissible diseases, and minimizing the likelihood of physical injuries. (Continuing education for health care providers is also necessary, in order to alert them to the dangers of prescribing unnecessary drugs or X-rays for women who are or could be pregnant.)
- Availability of education to prepare the pregnant woman and her husband or other support person to be active participants during labor and delivery. (Such preparation appears to contribute to improving pregnancy outcomes and may enhance the childbirth experience in ways that promote healthy family bonding. With good preparation pregnant women are better able to cope with the pain and discomfort of labor without anesthesia and analgesia, thereby reducing the maternal and fetal risks associated with all forms of obstetric anesthesia and analgesia and eliminating costly anesthesiology. Childbirth education classes are widely available except in rural areas and small towns. The classes are usually organized and provided within a private market outside of the traditional medical care system. Some private health care insurers reimburse for the cost of such classes if a physician "orders" them. They are not separately reimbursed by Medicaid. These

policies do not provide sufficient incentives for providers to offer such services. Although most obstetric care organized specifically for poor women includes an educational component to prepare them for the experience of labor and delivery, the quantity and quality of preparation for poor women is often less than that which is available to middle class women through private organizations such as the International Childbirth Education Association. Since low-income pregnant women often need more medical attention and have less understanding of female physiology, their needs for education are often greater, and preparation should be more extensive.)

- Information to prepare the mother and father to meet the physical, emotional, intellectual, social, and health needs of their newborn, including information on the importance of breast feeding, and when and how to introduce other foods; the importance of holding, touching, comforting and verbally stimulating the infant; the importance of social interaction and smiling; the infant's need for visual stimulation and for safe and appropriate toys; the importance of always securing the infant in a proper restraint when riding in an automobile; and information to address special concerns of the parents.
- Special programs for pregnant school-age girls to permit uninterrupted education or vocational training and to provide special instruction and support tailored to the special needs of pregnant adolescents regarding nutrition and self-care during pregnancy, preparation for labor and delivery, and infant growth, development and care. (These "special" programs should be in addtion to the regular school curriculum. Pregnant adolescents who wish to continue their regular school program must be allowed to do so.)
- Intermediate levels of care to allow for better management of conditions that may not require hospitalization but that require more than routine outpatient care (e.g., the management of a pregnant women with diabetes, questionable pre-eclampsia, or threatened premature labor), perhaps by frequent nurse home visits, hospital day care, or nurse-supervised residential care.
- Availability of 24-hour telephone consultation with a nurse or physician member of the obstetric care team.
- Nutrition services and nutritional supplements from programs such as the Special Supplemental Food Program for Women, Infants, and Children (WIC).
- An antenatal pediatric visit to arrange for the health care of the newborn.
- Social and legal services for crises intervention, securing proper housing and food, and obtaining homemaker services and/or residential support for pregnant women without adequate family support, especially adolescents, women planning to give their babies up for adoption, and victims of domestic violence.

(2) Counseling for women with unplanned pregnancies, with referral and assistance in obtaining necessary services including, where desired, support services for continuation of pregnancy, placing the newborn for adoption, and first and second trimester abortions.
(3) Medical services related to spontaneous abortion including, when indicated, counseling regarding future reproductive prospects and alternatives.

Onset of Labor to 1 Week Following Birth

The setting for birth, the category of trained birth attendant, and the precise management of labor, delivery, and the immediate period following birth are dependent upon the risk status of each individual pregnancy, the mother's choice, and local resources. Minimum necessary perinatal care in every case should consist of:

(1) Continuing observation by a trained attendant of the progress of labor and condition of the mother and fetus throughout labor. (Observation should be systematic with careful documentation, increase as labor progresses, and be uninterrupted during the second stage. Electronic monitors may be used to augment observation by a nurse, midwife, or physician, especially in high-risk cases, but should not replace direct clinical observation or clinical judgment.)
(2) Immediate medical backup for diagnosis and management of threatening conditions and obstetrical emergencies, including the capacity to perform a safe cesarean section delivery when indicated. (Backup support includes effective telecommunications consultation, and efficient direct transport to a perinatal center for services that are not available onsite. It is not advisable for labor and delivery to be managed in settings that cannot provide for emergency stabilization of the parturient who experiences an obstetrical emergency or for emergency resuscitation and stabilization of the newborn. Labor and delivery should not be managed routinely in settings that require more than 15 minutes travel time to a hospital with facilities and personnel to perform a cesarean section or provide care for the critically ill newborn.)
(3) Physical and emotional support for the woman in labor—often best achieved by the presence of the laboring woman's husband or friend who has been prepared to provide this support—as well as sensitive and skilled nursing care.
(4) Assistance to the mother provided by a trained attendant, i.e., a physician or nurse midwife, during the actual birth, in order to deliver the baby gently, without undue delay, and in a controlled manner.
(5) Immediate evaluation of the newborn with skilled resuscitation capability available onsite.

(6) Sensitivity, attention, and accomodation to the mother's and father's physical, emotional, and social needs and desires during their childbirth experience.

(7) An effective system for communication, referral, consultation, transportation, exchange of medical records, exchange of payments, and continuing professional education that integrates all components of perinatal care into an organized network of resources responsive to the continuum of needs within a community.

(8) Rh isoimmunization prophylaxis to reduce the occurrence of erythroblastosis fetalis, a fatal blood disorder in the newborn. (Rh immune globulin should be administered to all unsensitized, Rh negative women who deliver an Rh positive infant, have a spontaneous or induced abortion, have an ectopic pregnancy, have an intrauterine death, or undergo amniocentisis performed without sonography.)

(9) Availability of postpartum voluntary sterilization procedures following vaginal delivery or in conjunction with operative deliveries for women who desire them.

(10) Supervised instruction of the new mother during her postpartum hospitalization regarding infant care skills, including breast feeding, taking the infant's temperature, and recognition of the signs of illness in the newborn. (Having the mother and newborn "room-in" provides an opportunity for supervised continuous contact between the new mother and her newborn and promotes and facilitates care and breast feeding by the new mother. New obstetric units should be designed and old ones remodeled to accommodate rooming-in. State and local hospital licensing criteria often need to be relaxed to permit this practice. Maternity hospital practices will often need to be changed and personnel reoriented and trained to assist mothers with breast feeding and to promote early maternal-infant bonding. Successful establishment of lactation and maternal-infant interaction can be disrupted by many current "routine" hospital practices.)

(11) Homemaker services as necessary during the mother's hospitalization and early convalescence at home, especially following cesarean section delivery (and for mothers with other children and no family support).

(12) Nurse home visits as an extension of the obstetric and/or pediatric care, providing education, health assessment, parenting skill development, and assistance in arranging necessary follow-up medical care.

(13) Identification of available medical and nursing community consultation resources for parents who experience problems with breast feeding or infant care, or who have other concerns in the interim between discharge from the hospital and the first planned well-baby visit.

(14) Counselling and legal services, especially for adoption, placement, foster care, or financial support from an absent father.

(15) Education and counselling regarding postpartum family planning and self-care before the usual 4–6 weeks postpartum examination.
(16) Availability of barrier contraception for use before the postpartum examination.
(17) Availability of skilled nurses to instruct new mothers in breast feeding techniques, to encourage and support the new mother in establishing a satisfactory breast feeding pattern, and for consultation if problems arise.

Newborn Services

With the transition from intrauterine to extrauterine existence, there are new requirements for health care. The healthy newborn and the sick newborn require separate independent attention.

(1) Immediate newborn care, including evaluation of the newborn immediately following delivery, with rapid initiation of appropriate treatment including nasal-oral suctioning, keeping the infant warm, observing for signs of distress, and promoting early contact between the mother, father, and newborn.
(2) Continued observation by a trained attendant able to evaluate the infant's success in adapting to extrauterine life, even for newborns not identified as in distress at the time of birth.
(3) Skilled resuscitation and stabilization capability by trained personnel. (Even after a completely uncomplicated pregnancy, unpredictable events during labor and delivery may result in the birth of an ill newborn who requires immediate resuscitation.)
(4) Referral and safe, rapid transportation of sick infants to newborn intensive care centers.
(5) Screening tests for inherited metabolic diseases for all newborns, in order to prevent certain causes of mental retardation and chronic ill health such as phenylketonuria (PKU), hypothyroidism, and others.
(6) Continuing pediatric health supervision in the hospital, with clear arrangements made for comprehensive care of both high-risk and normal newborns after discharge.

Later Postpartum Period (First 4 to 6 Weeks)

(1) Availability of 24-hour telephone consultation with pediatric care provider or public health nurse.
(2) Social work services as needed to assist with economic and social problems.
(3) Availability of mental health services for crises intervention and postpartum depression.
(4) Availability of nutrition programs, such as WIC and Food Stamps.

(5) Comprehensive primary care for both the mother and infant with initiation of contraception as desired and immunizations for the infant including a general discussion of how the family and the infant are adjusting to one another, and a review of infant care practices.

Services for Parents

(1) Mental health services, particularly in cases of family crises or domestic violence, and to meet general needs for psychosocial support.
(2) Parenthood education.
(3) Availability of day care for infants 6 weeks and older, especially for school-age mothers.
(4) Social work services as necessary, e.g., assistance in obtaining Medicaid eligibility, food stamps, legal services required to obtain financial support for the child from its father, planning for future education, training, and employment.

Pregnant Adolescents and Adolescent Parents

The provision of obstetric care to adolescents is often complicated by their unreadiness for pregnancy coupled with a suspicion of the adult world. At a time when they need a great deal of support and help from adults in understanding and coping with the physical, emotional, and social changes they are experiencing, they are likely to be confronted with a largely authoritarian situation in which specific practices and procedures must be strictly followed in order to minimize the risk of a poor pregnancy outcome. Pregnant adolescents need health care providers to reach out in nonjudgmental and flexible ways (*73*). In addition to the health services needed by other pregnant women, pregnant teenagers and teenage mothers have special needs:

(1) Prenatal care services that follow the pregnant adolescent closely; primary and preventive health services to prepare the young mother for labor, delivery, and caring for her newborn infant.
(2) Screening for and treatment of sexually transmissible diseases (including all contacts).
(3) Primary pediatric care that emphasizes support and outreach for both the newborn and the young mother.
(4) Health education regarding sexuality, relationships, contraception, and family life.
(5) Educational and vocational services to assure that young mothers continue their education and or receive appropriate job training.
(6) Adoption counseling, social, and legal services.

(7) Child care services to enable young mothers who wish to continue their education or to enter the job market to do so.
(8) Homemaking education including instruction in budgeting, purchasing, and planning and preparing nutritious and balanced meals for herself and her infant.
(9) Counseling for the family members (an adolescent pregnancy can be extremely stressful to the teenager's entire family; counseling should also be available to the young father and his family.)
(10) Transportation and outreach services. (Physically getting to provider sites can be difficult for adolescents in low-income urban areas as well as rural areas.)
(11) Counseling to identify child abuse and neglect with initiation of special support to avoid further problems and prevent the development of a destructive pattern of parent-child interaction.

ISSUES AND IMPLICATIONS ASSOCIATED WITH NEEDED SERVICES

The enumeration of needed health services for pregnant women, infants, and families in the previous section has significant implications for the delivery of health care services in the United States. This section elaborates on several of them.

Defining the Health Needs of Women

Health care services should be determined by definite health care needs. However, to determine health care needs, a clear understanding of the concept of health is required. The definition of health is, however, controversial. More than just the absence of disease, health seems to defy precise definition. The World Health Organization's definition of health as a complete state of physical, mental, and social well-being is broad and all encompassing. Others have suggested that health is the absence of "hyper-untoward-eventitis,"[2] while still others propose that health is the state of maintaining equilibrium in response to disruptive elements. Even if we could agree upon a qualitative meaning for health, measurement of health status would remain an enormous task beset by many hazards. In practice the concept of health status is usually approximated by an inventory of characteristics that appear related to the population's health without regard to a precise definition of health. Traditionally, survival measures are the principal health status indicators. However, these measures are too narrow to accurately reflect the notion of well-being that

[2]A. E. Hellegers, Director, Kennedy Institute for the Study of Human Reproduction and Bioethics. Personal communication, August 1977.

is central to the concept of health and hence provide only limited information upon which to determine a population's health needs.

Health needs can be thought of as a set of necessary conditions that enable individuals to positively and successfully achieve and maintain adaptive homeostasis in response to changing or threatening stimuli. In this sense health promotion activities are the set of actions designed to facilitate behavioral and environmental changes conducive to health (*74*).

The health needs of women can be categorized as:

- General health needs such as:
  - —Routine health maintenance care
  - —Health promotion and disease prevention practices
  - —Adequate nutrition
  - —Exercise
  - —Appropriate medical care for identification, detection, and management of acute and chronic physical and emotional conditions
  - —Dental care
  - —Health information and education
- Health needs related to the female reproductive system:
  - —Prevention of unwanted pregnancies and births
  - —Prevention, early detection, and management of conditions related to the reproductive system and processes
- Special health needs of women of childbearing age:
  - —Proper diet and nutrition for maintaining appropriate height, weight, and hematocrit
  - —Sustaining the motivation, knowledge, and means to prevent unwanted pregnancies and births
  - —Avoidance of potential hazards such as radiation from environmental or occupational sources or unnecessary radiation associated with medical and dental screening, diagnosis, and therapy
  - —Proper medical treatment and/or management of acute and chronic physical and emotional conditions
  - —Establishing immunity to rubella;, establishing healthy and satisfying social relationships and sexuality

The obstetrical community refers to the health care of women not currently pregnant, as "interconceptional care" (*75*). Interconceptional care begins with the care provided during the postpartum period and implies a "continuum of care flowing dynamically and continuously from prenatal and intrapartum care" (*76*). Essentially it consists of periodic health examinations throughout the entire cycle of human reproduction beginning at birth and carrying through infancy, childhood, adolescence and young adulthood, ending at conception, and resuming again postpartum. It continues cycling for the infant to conception, and for the woman to the next conception or the menopause (*75*). The concept of interconceptional care carries a significant bias; all health care for women is characterized in terms of a central event—pregnancy. The connotation is that women are always in a state of "mother-to-be" during the reproductive period. In other words, the time of nonpregnancy is merely an

interlude between pregnancies. Although procreation is central to human existence, the notion that from birth through menopause a woman's motivation and responsibility to achieve optimal health status are based solely on reproduction denies the importance of health for the woman herself. It also ignores the importance of health care for women who choose to remain childless or to limit childbearing, and for women beyond their reproductive years. As a consequence of this concept, many women perceive their obstetrician-gynecologist physician to be responsible for their total health care. In some instances this may be effective and beneficial. However, health services should be organized to optimize all aspects of health divest of limited categorical objectives. Not all medical conditions can be handled by the obstetrical-gynecological practitioner. Some conditions may go undetected because of a different threshold of problem identification. In addition, after menopause or sterilization, many women "drop out" of the obstetrical-gynecological primary health care system and may end up out of the health system entirely.

Health Education

A significant proportion of reproductive or child health problems can be prevented or ameliorated by changing maternal or parental behavior. Whether health education is effective in changing behaviors that influence health is uncertain. This question is critical, however, because of the need to appropriate limited resources efficaciously. Some authors contend that greater investments in health education targeted to reducing selected problems in selected populations have a greater yield for less cost than a comparable investment in medical care. Unfortunately, health education and medical care are sometimes viewed as mutually exclusive strategies, rather than as synergistic components that may work best together.

Effective health education to reduce the reproductive and family health problems addressed in this paper will require collaboration between the health, education, and public communications professions. Teaching/learning materials and curricula need to be developed, as well as methodologies for effectively getting the message across. Programs are needed that will both train health care providers to be effective teachers and provide accurate health information to educators.

There are serious problems regarding reimbursement of health practitioners for providing health education services. Current health insurance plans that only reimburse for diagnostic and therapeutic procedures and ignore health care provider costs related to patient or public education are disincentives for providing health education. In addition, physicians, who are the most prestigious and powerful actors in the health care arena, receive little medical school instruction in effective teaching techniques. As a result, health education commands little attention in the practice of medicine and is often delegated to other less influential members of the health care team. Even though such delegation may be appropriate, the result is that health education lacks the status and priority accorded to procedures performed by physicians.

Family Life Education and Sex Education

Although controversial, sex and family life education have fairly broad support within our society. The results of a recent poll indicate that 78 percent of the American public now favor sex education in the schools. Only 65 percent favored it in 1970 (77).

- Although 41 percent of those surveyed think that parental permission should be obtained, 37 percent think children should receive sex education regardless of their parents' views.
- 84 percent of the people who favor sex education in school think that it should include principles of ethics and responsible sexual behavior; 72 percent think it should be taught in school because parents do not deal with the issue at home.
- 68 percent of the people who favor sex education in school do not think that sex education at school leads to more teenage sex before marriage; 59 percent think that sex education should be taught to children 12 years old or younger.

From these data it appears that fears about parental opposition toward sex education are unfounded. When assessing parental attitudes, a distinction should be drawn between resistance and opposition. Resistance is usually manifest by parents who feel a lack of knowledge concerning the "what, when, how, and who" of the program and can be avoided by keeping the parents well informed about program details.

Although physicians are considered by parents to be among the most appropriate leaders of sex education programs, they are among the least likely to be sought out by young people who want sex information. Training in human sexuality has become "standard" in U.S. medical schools only very recently. Involvement of representatives from the total community, including lawyers, parents, religious leaders, businessmen, health service providers, youth organization leadership, and students, are important for successful and long-lasting sex and family life education programs that are effective and relatively free of diverse community conflict.

Although the effects of sex education programs on psychological health and interpersonal relationships or on reduction of unwanted teenage pregnancies are unknown, efficacy surely depends upon the curriculum, the setting, and the teachers. Instruction regarding human sexuality, although fundamental to the well-being of society, is often excluded from organized school systems. Where it is a part of the curriculum it is often mediocre and inadequate. There is great variation among sex and family life education courses. Methods need to be developed and validated with which to evaluate these programs.

Prenatal Care: Is It Worthwhile?

Quality prenatal care is considered essential to an optimal pregnancy outcome for both the mother and the infant. Prenatal care is defined as the continuous surveillance and management of expectant women

throughout their pregnancies (*76*). It encompasses identification of high-risk pregnancies; application of accepted methods to prevent, detect, and treat pregnancy complications; attention to unmet nutritional, social, emotional, and physical needs; and education to prepare the pregnant woman for the demands of pregnancy, childbirth, future self-care, and infant care.

The American College of Obstetricians and Gynecologists recommends a routine schedule of prenatal care visits: every 4 weeks until the 28th week of gestation; then every 2 weeks until the 36th week; and thereafter every week until delivery (*78*). Although adherence to this schedule may provide a setting for quality prenatal care, it does not ensure it. Frequency of visits should not be confused with the appropriateness and quality of the services provided during a visit. The complete inventory of prenatal services specified in the previous section is not provided to most pregnant women in this country. Often the physical aspects of pregnancy are well attended to, while the social, emotional, and educational needs go unmet.

Nonetheless, prenatal care currently offers the best available approach for preventing untoward pregnancy outcomes, especially low birth weight. The 1973 Institute of Medicine Kessner Report concluded that "adequacy of (prenatal) care is strongly and consistently associated with infant birth weight and survival" (*79*). This report further concluded that if all women had the pregnancy outcomes of those receiving adequate prenatal care, the overall infant mortality rate for their study cohort could have been reduced by as much as one-third. Many other factors are also associated with, and/or affect, pregnancy outcomes, including the expectant mother's behavior, nutrition, education, height, weight, economic status, and cultural background. The relative influence of any one of these factors is difficult to isolate. Further, since those expectant mothers who are at highest risk due to social factors are least likely to receive early and adequate prenatal care, the extent to which improved access to services could actually improve their pregnancy outcomes is difficult to determine.

Reasons why many women still do not receive adequate and timely care include the following:

- Prenatal care is frequently not covered by third-party reimbursement programs; Medicaid does not cover first pregnancies in most States.
- Where covered, Medicaid reimbursement levels are often so low that many practitioners do not accept Medicaid payments.
- Distribution of professionals trained to provide necessary services is limited and uneven, especially in isolated rural areas. Medicaid's current policy of only reimbursing physician services discourages nurse midwives from working in some areas of great need.
- Some obstetrical practitioners have shifted away from providing maternity care. Some factors contributing to this change include ambiguous malpractice liabilities and consumer pressure for changed obstetric practice.
- There is inadequate coordination among the many publicly supported programs responsible for providing prenatal care, and between public programs and private providers of these services.

- Many of the highest risk pregnant women lack motivation to seek care. Many low-income women are accustomed to episodic-crisis care provided in public facilities that are in disrepair and unattractive, relegating their use to dire emergencies only.
- There is a lack of outreach to assist women in getting care, partly because many public health departments have discontinued or greatly reduced home visits by public health nurses.
- Health education or information to make all women aware of the importance of prenatal care has been insufficient and/or ineffective.

Few health activities have as much potential for promoting health as quality prenatal care services.

Childbirth Care: Over Medicalized?

It is widely recognized that pregnancy, birth, and parenthood are stressful events that require major life changes. Some investigators are beginning to accumulate data to show that the experiences people have and the adjustments they make at the time of family formation—the time of the first birth—may have long-term effects on the quality of their family life (*80*). In addition, most parents, especially new mothers, need information and help to prepare them to care for their newborn infants in ways that both protect and promote the infants' physical, emotional, intellectual, and social health, growth, and development. Professionals working with expectant and new parents find them remarkably open to childbirth education and counseling. Even people who would never consider using a "mental health" service often find it acceptable to seek and participate in counseling and classes aimed at helping them to prepare for and cope with the changes attendant to pregnancy and birth, and to prepare themselves to be good parents.

Despite general agreement that many expectant and new parents need education, support, and counseling, a meager proportion of the available resources, measured not only in dollars, but also in the creativity, interest, and energy of those who plan and provide maternal health care, is devoted to these services. Medical and technological components of care compete much more successfully for the same resources. Some of the most creative, energetic efforts at approaching these problems come from groups such as the LaLeche League, the International Childbirth Education Association, Parenthood Effectiveness Training, and women's movement groups, most of which operate completely outside of the third-party-payment health care system. Rarely do the women and families who are most at risk and in need avail themselves of the services offered by these groups.

Although we give priority to the physical health needs of the pregnant woman and developing fetus, it is important to remain attentive to, and emphasize the emotional and social importance of, the experiences that pregnant women, expectant fathers, and other family members undergo during pregnancy, childbirth, and the first months after a new child, especially a first child, is born. This sensitivity often yields to the preeminent medicalizing of the birthing process. The opposing philosophies regarding intrapartum care typify this dichotomous perspective. One

approach, although mindful of potential complications, assumes that pregnancy is *a priori* normal. The other philosophy assumes that a pregnancy cannot be proven normal until it is over, and therefore approaches each pregnancy as if it were high-risk. There is substantial disagreement about which approach yields the best results. Three questions are central to this debate.

- Where should childbirth take place (i.e., community hospitals, regionalized perinatal centers, organized childbirth centers not part of a hospital, homes)?
- Who is qualified to assume responsibility for the care of women during labor and delivery?
- What are the risks and benefits of the use of certain forms of "childbirth technology"?

Each of these questions bears directly on the primary focus of this paper—what health services are necessary to support healthy reproduction? Controversies related to these three questions are discussed.

Childbirth in Nonhospital Settings?

An increasing proportion of pregnant women in America are currently choosing to give birth in settings other than hospitals. Some choose home birth because they prefer the experience of giving birth in the comfortable and familiar surroundings of their own homes. Others deliver at home or in childbirth centers in order to avoid "routine" medical procedures and hospital practices, such as intravenous infusion, confinement to bed, unsolicited medications, clinical environments, electronic fetal monitoring, limited contact with the newborn, regimented infant feeding, endless vital sign measurements, and so on, that they anticipate would be uncomfortable, possibly dangerous, and unnecessary interferences to the joyful celebration of childbirth. To achieve control of their childbirth experience, some parents are willing to risk the absence of medical services.

Although less than 2 percent of U.S. births occur outside of a hospital, there is a definite trend toward nonhospital births, especially in selected States. For example, the number of nonhospital births in Oregon increased from 168 births (0.5 percent of the total number of births) in 1963, to 1,492 births (3.9 percent of the total) in 1977 (*81*). Currently at least six national organizations of lay and professional people support and promote home births (*82*).

Although perinatal mortality rates for out-of-hospital deliveries are consistently much higher than rates associated with in-hospital deliveries (*83*), the data are confounded by high death rates for births that occur at home unexpectedly. Precipitous births of very premature infants, whose mothers may not have even realized that they were in labor, and births which occur at home because of lack of planning or lack of access to hospital care often have poor outcomes. Proponents of home births and birthing centers have reported very good outcomes associated with planned out-of-hospital births attended by qualified physicians, nurse midwives, or experienced empirical midwives within organized home birth services or freestanding maternity centers (*84–86*). In order to evaluate

fairly the risks of nonhospital births, the outcomes of attended out-of-hospital childbirth for women judged to be low-risk before the onset of labor should be compared with outcomes for similar low-risk women who give birth in hospitals.

Nonhospital childbirth centers have been organized in many cities with the aim of providing an acceptable and safer alternative to home births. In most cases these centers serve only prescreened, low-risk women who have participated in a full program of prenatal care and childbirth education. Physical care is usually provided by an interdisciplinary team, often consisting of nurse midwives with backup by obstetricians, pediatricians, nurses, and auxiliary health personnel. A system for rapid transfer in emergencies usually includes prearrangement with an ambulance service and a nearby acute-care hospital. To date all published assessments of such centers suggest that they are both safe and economical (*83, 86, 87*).

Women who seek attended home or birthing-center deliveries have been described as inherently low-risk because they are a self-selected healthy group who are knowledgeable about pregnancy and childbirth and motivated to comply with advice about smoking, nutrition, and prenatal care (*84*). There is no guarantee that as the trend grows, the currently restricted low-risk criteria will not become relaxed, and women who are known, *a priori,* to be at some obstetrical risk will deliver at home or in nonhospital birthing-centers. Moreover, a proportion of low-risk women do not remain low-risk throughout the intrapartum period and may require specialized technical assistance.

Although most alternative childbirth services have developed outside of, and frequently in conflict with, local traditional systems for regulating and controlling health care, there is a growing need for the conventional and alternative systems to communicate and work together. The following are examples of such efforts:

- New California State regulations were established to set standards for alternative, home-like birthing centers.[3]
- One District of Columbia hospital granted hospital privileges to an independent, incorporated nurse midwifery practice.
- Home birth practitioners were invited to participate in the continuing education program of the Oregon Perinatal Regional Program.
- Blue Cross/Blue Shield of Greater New York decided to reimburse for childbirth care provided by a nonhospital childbearing center in New York City.

Perinatal Regionalization: Improved Access to Quality Medical Care?

Regionalization of perinatal services involves linking community hospitals; academic medical centers; obstetricians, pediatricians, and other physicians in private practice; health department and other maternity clinics; and laboratories into a network of services to identify

[3]National Association of Parents and Professionals for Safe Alternatives in Childbirth. Personal communication.

high-risk situations and to ensure that all pregnant women and newborns have access to the appropriate level of prenatal, intrapartum, and neonatal health care. Successful implementation of such a system requires effective communication, a program of continuing education, and arrangements for referral, transportation, and transfer of patient records and payment for services (*88*).

One assumption underlying the concept of regionalization is that hospitals with fewer than 500 annual deliveries are inefficient and unable to provide high quality care to high-risk mothers and infants (*88*). The continued existence of small community hospital maternity and newborn services is discouraged except where unusual geographic, climatic, and transportation problems would make it very difficult for local women to use a larger service elsewhere (*89*).

Although a multilevel care system that matches the intensity of health care to the pregnant woman's and infant's degree of risk seems reasonable and beneficial, problems with implementation of regionalized prenatal care systems are arising. There is a tendency to refer in a unidirectional manner only to a higher level of care; high-risk patients are referred to the tertiary care level while referrals of low-risk patients to less intensive and less costly care may not occur at all. The closing of obstetric services in small community hospitals discourages obstetrician-gynecologists from practicing in smaller communities, thus making it harder for women in some areas of the country to get either prenatal or intrapartum care. The assumption of a cost-benefit advantage to regionalization may not be justified if the allocation of scarce resources to costly perinatal and neonatal tertiary care centers does not produce better results than would result from equal expenditures to improve prenatal services (*89*). Finally, some impediments to regionalization persist: bureaucratic obstacles to intercounty reimbursements; inadequate funding of continuing education programs for primary and intermediate level hospital personnel; and failure to solve problems associated with transfer of individual patient medical records (referral of patients without their complete records leads to costly and sometimes detrimental duplication of services).

Obstetrical Manpower: Are Nurse Midwives the Answer?

A nurse midwife is a health professional educated in the two disciplines of nursing and midwifery. The American College of Nurse Midwives (ACNM) approves educational programs that prepare registered nurses to become certified nurse midwives (CNM's) skilled in providing the health care needed by essentially normal women and their babies during pregnancy, labor, delivery, and the postpartum-postnatal period. Nurse midwives are also qualified to provide gynecologic care, including family planning, to healthy women who are not pregnant. Nurse midwives work in association with obstetrician-gynecologists or other physicians, to whom they refer patients with high-risk conditions or complications. Currently nurse midwives are licensed to practice in every State except Kansas.

Professional midwives have been and continue to be the primary providers of obstetrical care in much of the world, including Great Britain

and many Western European countries. Professional nurse midwifery was introduced in the United States slightly more than a half century ago to provide quality maternal and infant health care to populations that had high rates of maternal and infant morbidity and mortality and little or no access to traditional medical obstetric care.

In this country, nurse midwifery has grown relatively slowly until very recently. In 1976 approximately 1,000 nurse midwives were working in the United States. Only about 650 of them were in clinical practice, delivering approximately 1 of every 100 babies born in this country that year. Two-thirds of those in clinical practice had graduated as nurse midwives during the prior 6 years. Between 175 and 200 new nurse midwives are certified each year. A study conducted by the ACNM in 1976 described the current practice of U.S. nurse midwifery (*90*).

- Of those nurse midwives in clinical practice, at least 90 percent provide outpatient prenatal care and family planning services; approximately 85 percent manage labor and delivery and perform postpartum physical examinations.
- Except for immediate attention to newborns following birth, relatively few nurse midwives assume responsibility for neonates or provide later well-baby care; most of their contributions to infant care are directed at education and support of mothers.
- 60 percent of them teach organized series of classes for their patients and for other clients.

The largest proportion of nurse midwives (46 percent) are employed by hospitals; 14 percent are employed by public health agencies, and 13 percent are in private practice with one or more physicians. Nurse midwives also provide care to military personnel and dependents, college students, and women enrolled in prepaid health maintenance plans. Ten percent of them work in nurse midwife managed maternity services or have started private nurse midwifery practices. Although they now serve a broad segment of American women, nurse midwives continue to provide care for medically underserved subgroups of the population.

While nurse midwifery has grown in numbers and popularity in recent years, significant barriers continue to limit nurse midwifery practice. Problems include lack of adequate funding for training, limited numbers of qualified teachers for nurse midwifery educational programs, and limited third-party reimbursement. (CHAMPUS, the Federal third-party payer for military dependents' health care, reimburses nurse midwives directly; Medicaid does not.) Physician resistance has resulted in limited access to hospital privileges. Although nurse midwives are needed and sought to provide prenatal, postpartum, and family planning outpatient services in a variety of publicly funded maternal and infant care programs, many of them refuse to take positions in which they cannot also manage their patients' care during labor and delivery. Nurse midwives practicing in public clinics have often been denied privileges at local hospitals. Nurse midwives in private practice partnerships with physicians have had more success in this area. While most babies delivered by nurse midwives are born in hospitals, limited hospital delivery privileges may be one reason behind the growing trend towards development of nurse midwife administered out-of-hospital maternity centers.

Evaluations of nurse midwifery practice have shown it to be safe, effective, and often cost-saving. Moreover, nurse midwives have proved to be particularly successful at serving some hard to reach groups, such as teenagers.

Risks and Benefits of Childbirth Technology

A number of obstetrical diagnostic and therapeutic techniques have been developed to improve the management of high-risk and complicated pregnancies. The current application of these techniques to an expanding proportion of pregnant women raises questions of safety, need, and economy. The question of when such techniques are necessary has particular importance for obstetrical interventions that have as possible consequences disturbing or disruptive effects upon the birthing process, increased maternal jeopardy, increased cost, and uncertain short- or long-term benefits for the infant. The balance between the inherent risks, costs (both human and capital), and benefits of these procedures becomes less favorable as they are used on a larger and larger proportion of pregnancies with a more dilute admixture of high-risk situations, prescribing to the "abnormal until proven otherwise" philosophy.

Some of the obstetrical practices involved in this controversy are elective induction or augmentation of labor, anesthesia and analgesia during labor, artificial rupture of fetal membranes, routine electronic monitoring of fetal status *in utero* (EFM), forceps delivery, and delivery by cesarean section. Cesarean section and EFM are discussed in greater detail.

Cesarean Section Delivery

The first recorded successful delivery of a fetus by abdominal surgery was performed in the year 1500 by Joseph Nufer, a Swiss gelder, in a heroic effort to save the lives of his wife and child (*91–93*). In the recent decade, the rate of babies delivered by cesarean section has risen threefold to a current rate of approximately 15 of every 100 births. Today, almost 400,000 cesarean sections are performed annually in the United States at an estimated capital cost of more than $1 billion (*93, 94*). Cesarean sections are major surgery with preliminary data suggesting a maternal mortality rate of one death per 1,000 procedures. Approximately one of every three women who have cesarean sections experience some significant postoperative complications in addition to the human and capital costs arising from prolonged hospital stays (*91–103*).

An additional "cost" of cesarean sections is that they may interfere with important bonding experiences that are normally shared by mother and infant in the moments and days immediately following birth. Most mother-infant pairs are probably able to achieve normal maternal-infant bonding despite encumberances involved with the cesarean section. However, the stresses and demands associated with care of a newborn infant are more difficult to cope with when a mother is recuperating from major abdominal surgery.

"In general cesarean section is used whenever it is believed that further delay in delivery would seriously compromise the fetus, the mother, or both, yet vaginal delivery cannot be safely accomplished" (*92*). There are four major categories of indications for cesarean section:

(1) Labor is contraindicated; the forceful uterine contractions of normal labor are considered unsafe for either mother or fetus.
(2) Delivery is necessary, but labor cannot be induced.
(3) Mechanical problems of the uterus, fetus or birth canal prevent the successful or safe progress of labor and vaginal delivery.
(4) Maternal or fetal emergency mandates immediate delivery (*92*).

The need for a cesarean section is not always clear, however (*104*). Many of the indications are not mutually exclusive; rather "a cesarean section may be necessary because of several indications, no single one of which in the degree present would justify the operation" (*104*). Over time there have been changes in the indications for cesarean section and the relative importance of one indication versus another. Advances in the development of antimicrobial agents, drugs to control blood pressure, and safe and available blood and blood products have reduced the incidence and sequelae of intrauterine infections (amnionitis), toxemia, hemorrhage, and RH isoimmunization sensitization and have reduced the number of cesarean sections performed for these reasons (*105*).

Why then has the rate of cesarean section delivery increased so dramatically? A recent government-sponsored study identified 11 principal factors that have contributed to the increase in cesarean sections (*95*). Threat of a malpractice suit if a cesarean was not performed and the outcome was a "less than perfect infant" was the most frequent reason given by physicians for the increase in the cesarean section rate.

The second most important factor contributing to the increased cesarean section rate is the general policy in American obstetrical practice that women who have had a cesarean birth must deliver all subsequent infants by section—"once a section, always a section" (*98, 102, 106, 107*). Because the scar from a previous cesarean section may create a weakened section in the uterus, forceful uterine contractions of a subsequently normal labor may constitute a potential hazard to the mother and/or fetus; thus labor is considered to be contraindicated. The main and often only indication for approximately one-third to one-half of the cesarean section operations performed in the United States is a previous cesarean section scar (*91, 92, 104–110*). Newer cesarean section surgical techniques reduce this risk. Data from both the United States and abroad indicate that at least half of the women who undergo repeat cesarean could safely deliver vaginally (*111*). Many physicians, however, continue to perform cesarean sections without a trial of labor.

The maternal and infant morbidity and mortality that may result from an *automatic* repeat section must be weighed against the costs and benefits, both human and capital, of undergoing a vaginal delivery if there exists no other indication except fear of the rupture of a previous cesarean section scar (*112*). The prejudice inflicted upon a woman's future reproductive life by the primary section may well be unjustified (*113–115*). Additional study and research may possibly lead to widespread agreement with Schmitz that "once a C-section, *not* always a C-section" (*111*).

Other factors contributing to the increase in the rate of cesarean deliveries include (*95*):

- Obstetrical training that emphasizes active management of labor.
- Physician beliefs that given any complication, cesarean section is safer for the infant.
- An increase in the proportion of births to older and younger women, both groups that are at higher than average risk of developing pregnancy complications that necessitate cesarean section (*92, 116, 117*).
- Better medical and obstetric management of women with serious chronic disease, many of whom can now become pregnant and give birth; such complicated cases frequently require cesarean delivery.
- An increased incidence of genital Herpes virus in the United States population, combined with recognition of cervical Herpes as an indication for cesarean section.
- More frequent diagnosis of fetal distress associated with the use of continuous electronic fetal monitoring (EFM) during labor.
- Increasing use of cesarean section when the fetus presents in the breech position (*107, 118, 119*).

Although cesarean section deliveries are clearly life saving in many situations, they are associated with significant risks of maternal morbidity and mortality as previously noted. In addition, mistiming of repeat cesarean sections results in some cases of iatrogenic prematurity, low-weight births, and infant mortality. With the proper fetal maturation assessment techniques now available in many but not all hospitals, infant fatalities associated with ill-timed cesarean sections can be prevented (*103, 104, 120-123*).

In order to properly assess the outcomes associated with cesarean sections, the short- and long-term maternal and infant consequences of cesarean delivery must be compared to the outcomes of vaginal deliveries of a comparable nature (*104, 121, 124*). Controlled clinical trials are needed to provide a sounder data base for making efficacious decisions. An NIH consensus conference on cesarean sections is scheduled for 1980 and should prove valuable in delineating criteria to aid in the judgment "when necessary."

Electronic Fetal Monitoring

Almost 40 percent of all first-time cesarean sections are performed as the result of emergency conditions thought to seriously threaten the well-being of the mother and/or the fetus. Abruption of the placenta, hemorrhage, fetal distress, and prolapsed umbilical cord constitute the major circumstances necessitating immediate delivery (*91*). As the conditions that threaten the well-being of the mother have been steadily overcome by advances in obstetrical practice, more attention has been focused upon ensuring the well-being of the newborn. The fetal heart rate has been established as a sensitive indicator of intrauterine fetal well-being during labor and delivery (*91, 125, 126*). Until recently, auscultation of the fetal heart was performed with the aid of the fetoscope and subsequent

determination of the fetal heart rate calculated by the obstetrical attendent. Today, aided by advances in electronic technology, continuous electronic fetal heart rate monitoring, (EFM), has almost completely replaced the former technique. EFM produces a permanent record of the fetal heart rate in association with a record of the timing and strength of uterine contractions. The significance of changes in the fetal heart rate depends upon the absolute fetal heart rate, beat-to-beat variation, and when they occur in relation to uterine contractions (*126*).

The electrode that transmits the fetal electrocardiogram is attached directly to a fetal presenting part once the cervix is sufficiently dilated, the amniotic membranes have ruptured, and the presenting part is within reach. If these conditions are not present, the fetal heart rate can be recorded indirectly by an external transducer attached to the mother's abdomen. With current technology, direct (internal) monitoring provides a better record of the fetal heart rate. The amniotic membranes are frequently artificially ruptured early in labor specifically to allow direct (internal) attachment of the electrode. The concurrent measurement and recording of uterine contractions is achieved through a transducer that, in the case of external monitoring, is attached to the mother's abdomen by a tight belt. In the case of internal monitoring the contractions are measured by changes in the intra-amniotic pressure measured through a plastic catheter filled with sterile water, which is placed in the uterus through the vagina and cervix.

Since EFM's introduction in the early 1960's, this new medical technology has been rapidly diffused to the point where it has now become routine on most obstetrical services. This widespread proliferation combined with the simultaneous exponential increase in the number of cesarean section deliveries has generated a serious controversy among obstetricians, pediatricians, economists, policymakers, and consumers. The current debate focuses upon the use of EFM during labor and delivery of presumed low-risk parturients. EFM is not without risk; trauma, infection, and even death have been attributed to its use (*127–131*). Furthermore, external EFM often requires women in labor to remain in a supine position, which may restrict utero-fetal blood flow. Freedom of movement helps many women to relieve labor pain. When movement is restricted greater use of analgesia and anesthesia is often required. Internal EFM requires direct attachment to the fetus and encourages early artificial rupture of the fetal membranes, a procedure associated with its own complications (*132*).

At best, the evidence establishing the efficacy of electronic fetal monitoring in all pregnancies is contradictory and equivocal (*133*). The literature is replete with pro and con articles asserting the tremendous advantages of electronic fetal monitoring in improving pregnancy outcome or condemning the indiscriminate use of this technology as wasteful, harmful, and responsible for numerous unnecessary cesarean sections (*116, 124, 133–138*). Despite this vast amount of literature, few of the studies are controlled. No benefit from electronic monitoring of low-risk pregnancies was found in the single large controlled study that stratified subjects by risk (*136*). A National Institutes of Health Consensus

Conference on fetal monitoring concluded that electronic fetal monitoring can cause harm in a small number of cases and should not be used routinely (*139*).

In order to resolve the central question of the EFM debate—should electronic fetal monitoring become the standard state-of-the-art of obstetrical management of labor and delivery for all pregnant women, both high- and low-risk—several clinical issues require resolution (*125*).

- Are signs of fetal stress equivalent to fetal distress?
- What is the predictive value of electronic monitoring as a diagnostic tool to detect fetal distress (133, 138)?
- What are the consequences of further "technologizing" and "medicalizing" of the human birthing process?

Improved Infant Health Services: Are They Beneficial?

It is difficult to quantify the full impact of health services during the first year of life. One example that calls attention to the importance of health services effective in preventing several early childhood conditions is discussed.

Newborn Screening for Metabolic Disorders

Several inherited metabolic or endocrine disorders lead to permanent mental retardation. However, if the disorders are identified and treatment is begun shortly after birth, their disabling consequences can be minimized or avoided altogether. The most widely known of these disorders is PKU (phenylketonuria), a disease that interferes with a child's ability to metabolize a particular protein (phenylalanine) found in a regular diet. Other such disorders include homocystinuria, galactosemia, maple syrup urine disease, tyrosinosis and hypothyroidism. Hypothyroidism is more common, and more easily correctable, but far less screened for than the other inherited metabolic or endocrine disorders.

Collectively, the incidence of these disorders is low; however, the costs associated with their neglect are substantial. An estimated 1,000 cases of these disorders will occur in 1980. If they are not detected and treated, 650 infants will become mentally retarded. Although 90 percent of all infants are reportedly screened for PKU, screening coverage varies by area. Screening for metabolic disorders other than PKU is much more limited. Based on the number of cases of mental retardation likely to occur with a 90 percent screening rate, and estimating the number of cases of mental retardation likely to occur in the absence of screening, $17.4 million in costs, in 1980 dollars, could be saved through increased screening.

The only available treatment for some of these disorders is substitution of special formulas in place of milk until the infant reaches a specified age. The special and necessary infant feeding formulas are expensive and, unlike a regular infant formula, are not universally available through the WIC program.

CONCLUSION

At no other time is the human organism more vulnerable to, and defenseless against, noxious or injurious stimuli or deprivations, both physical and psychological, than at conception and during the subsequent prenatal and postnatal periods of growth, development, and maturation. The transition from intrauterine to extrauterine life is a particularly critical time for building a sound foundation for future health. The pregnant woman and the fetus form a unique, interdependent diad. Together they significantly influence each other's futures. While a healthy birth does not guarantee a healthy future, being born of ill or even slightly compromised health may diminish a child's opportunity to realize full potential and result in consequences borne for a lifetime. Any strategy to improve the health of children must include *avoiding unplanned and unwanted pregnancies and births, improving pregnancy outcome, improving infant health, and improving the health and skills of parents.*

The health status of mothers and newborns in the United States has improved remarkably since the turn of the century. Federal efforts have contributed significantly to this achievement. However, despite this noteworthy progress, we have not yet achieved all that is possible. The fate of an infant born in this country is by no means assured. The enormously difficult task of the just and effective distribution of limited resources predominates the current national policy development. Contemporary health policy debates must therefore consider not only efficacy but cost, both human and capital, of a particular procedure or service as well. In addition, a truly objective assessment of both traditional and contemporary obstetric practices requires not only consideration of the immediate costs and benefits, but the long-term consequences as well.

There is little doubt of the untoward effects of poverty on the entire family, especially the children. As more and more American women seek employment to reduce the family financial burden, new concerns regarding the effects upon the family and society arise. For example, few data are available that would permit an evaluation of the overall effect, if any, of the increase in employment of women on pregnancy outcomes in the United States. The extent to which employed pregnant women and their fetuses may be exposed to health risks associated with specific jobs or work environments is a new and challenging public health frontier. However, safety is not the only concern. The workplace must also become more flexible to enable both mothers and fathers to work while continuing to fulfill their responsibilities as parents.

Successful family planning, especially among high-risk women, has significant potential to reduce infant mortality and improve infant health. Many of the characteristics that are associated with poor pregnancy outcomes are most prevalent among women who have unplanned births. By reducing the incidence of unplanned pregnancy among these high-risk women, family planning contributes to improved infant health. However, by far the most significant effect of family planning is to increase the chance that every child will be born wanted and will be welcomed into a loving family.

The remarkable improvement in maternal survival has allowed us to give greater attention to optimizing the outcome of birth for the infant and to the social and emotional aspects of pregnancy and childbirth. While we have made great advances in the treatment of low-birth-weight infants, there has been little progress in the prevention of low-weight births. Low birth weight is an antenatal problem and it can only be prevented in the prenatal period. Through the early identification of high-risk mothers and subsequent medical management, prenatal care can effect a significant reduction of infant deaths and life-long handicaps by preventing low birth weight. Improved access to quality prenatal care will not only reduce infant mortality but also will improve the quality of life for the survivors and reduce the cost of high-technology care for the compromised survivor. A balanced approach to prevention of low birth weight and improvement in survival of low-birth-weight infants is required to ensure continued improvement in infant health.

There is no substitute for a healthy beginning.

REFERENCES

(1) U.S. Bureau of the Census. *Current Population Reports*, Series P-23, No. 77, "Perspectives on American Husbands and Wives," Washington, D.C.: U.S. Government Printing Office, 1978.

(2) U.S. Bureau of the Census. *Current Population Reports*, Series P-20, No. 338, "Marital Status and Living Arrangements: March 1978." Washington, D.C.: U.S. Government Printing Office, 1979.

(3) U.S. Bureau of the Census. *Current Population Reports*, Series P-20, No. 312, "Marriage, Divorce, Widowhood, and Remarriage by Family Characteristics, June 1975." Washington, D.C.: U.S. Government Printing Office, 1977.

(4) National Center for Health Statistics. *Data from the National Vital Statistics System*, Series 21, No. 29, "Divorces and Divorce Rates: United States," Washington, D.C.: U.S. Government Printing Office, 1978.

(5) U.S. Bureau of the Census. *Current Population Reports*, Series P-20, No. 325, "Fertility of American Women: June 1977, "Washington, D.C.: U.S. Government Printing Office, 1978.

(6) Combs, L., *et al. "Premarital Pregnancy and Status Before and After Marriage." American Journal of Sociology* 75: 800-820, 1970.

(7) National Center for Health Statistics. "Trends in Fertility in the United States." *Data from the National Vital Statistics System*, Series 21, No. 28. Washington, D.C.: U.S. Government Printing Office, 1977.

(8) National Center for Health Statistics. *Monthly Vital Statistics Report*, Vol. 27, No. 11, "Final Natality Statistics, 1977." Washington, D.C.: U.S. Government Printing Office, 1979.

(9) U.S. Bureau of the Census. *Current Population Reports*, Series P-20, No. 315, "Trends in Child-Spacing, June 1975." Washington, D.C.: U.S. Government Printing Office, 1978.

(10) Chase, H. C., ed. "A Study of Risks, Medical Care, and Infant Mortality." *American Journal of Public Health* 63, supplement, 1973.

(11) Shapiro, S., E. R. Schlesinger and R. E. L. Nesbitt. *Infant, Perinatal Maternal, and Childhood Mortality in the United States*. Cambridge, Mass.: Harvard University Press, 1968.

(12) Adamson, K., and H. Fox. *Preventability of Perinatal Injury*. New York: Alan R. Liss, Inc., 1975.

(13) N. M. Morris, J. R. Udry, and C. L. Chase. "Shifting Age-Parity Distribution of Births and the Decrease in Infant Mortality," paper presented at the annual meeting of the American Public Health Association, Atlantic City, New Jersey, November 15, 1972.

(14) Thorne, M. C. and L. W. Green. "The Contribution of Family Planning Programs to Health: From Correlations to Causal Inference," paper presented at the annual meeting of the Population Association of America, Montreal, Quebec, April 29–May 1, 1976.

(15) U.S. Bureau of the Census. *Current Population Reports*, "Projections of the Population of the U.S.—1977 to 2050," Series P-25, No. 704. Washington, D.C.: U.S. Government Printing Office, July 1977.

(16) Zelnik, M. and J. F. Kantner. "Sexual and Contraceptive Experience of Young Unmarried Women in the United States, 1976 and 1971." *Family Planning Perspectives* 9: 55–71, 1977.
(17) U.S. Bureau of the Census. *Current Population Reports*, Series P-20, No. 336, "Population Profile of the United States: 1978." Washington, D.C.: U.S. Government Printing Office, 1979.
(18) Spiers, P. S. and L. Wang. "Short Pregnancy Interval, Low Birth Weight, and the Sudden Infant Death Syndrome." *American Journal of Epidemiology* 104: 15–21, 1976.
(19) National Center for Health Statistics. "Fertility Tables for Birth Cohorts by Color, United States, 1917–73." Washington, D.C.: U.S. Government Printing Office, 1976.
(20) Zabin, L. S. "The Risk of Pregnancy to Adolescent Girls in Early Months of Intercourse." *Family Planning Perspectives* 11: 215–222, 1979.
(21) Menken, J. "The Health and Social Consequences of Teenage Childbearing." *Family Planning Perspectives* 4: 45–53, 1972.
(22) Baldwin, W. Excerpt from the *National Institute of Child Health and Development Annual Report*, 1978.
(23) Ford, K. "Contraceptive Use in the United States: 1973–1976." *Family Planning Perspectives* 10: 264–269, 1978.
(24) U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control. "Surgical Sterilization Surveillance: Tubal Sterilization, 1970–1975." Issued July 1979.
(25) National Center for Health Statistics. Preliminary data from the National Survey of Family Growth.
(26) U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control. "Abortion Surveillance 1976." Issued August 1978.
(27) Petitti, D. B. and W. Cates, Jr. "Restricting Medicaid Funds from Abortions: Projections of Excess Mortality for Women of Childbearing Age." *American Journal of Public Health* 67: 860–862, 1977.
(28) Lanman, J. T., S. G. Kohl, and J. H. Bedell. "Changes in Pregnancy Outcome After Liberalization of the New York State Abortion Law." *American Journal of Obstetrics and Gynecology* 118: 485–492, 1974.
(29) Alan Guttmacher Institute. *Safe and Legal: Ten Years of Experience with Legal Abortion in New York State*. New York: AGI, 1980.
(30) Grossman, J. and S. Jacobowitz. "Determinants of Variation in Infant Mortality Rates Among Counties of the United States: The Role of Social Policies and Programs." Unpublished paper presented at the World Congress on Health Economics, Leiden University, The Netherlands, September 8–11, 1980.
(31) U.S. Bureau of the Census. *Current Population Reports*, Series P-23, No. 66, "Characteristics of American Children and Youth: 1976." Washington, D.C.: U.S. Government Printing Office, 1978.
(32) National Commission on the Observance of International Women's Year. *To Form a More Perfect Union*. Wasnington, D.C.: U.S. Government Printing Office, 1976.
(33) U.S. Bureau of the Census. *Current Population Reports*, Series P-60, No. 119, "Characteristics of the Population Below the Poverty Level: 1977." Washington, D.C.: U.S. Government Printing Office, 1979.
(34) Fisher, A. E. *Women's World: NIMH Supported Research on Women*. Washington, D.C.: U.S. Government Printing Office, 1978.
(35) Berhude. C. W., S. F. Berk, and R. A. Berk. "The Non-Division of Household Labor." Unpublished paper.
(36) Hall, J. H. Statement Before the Senate Committee on Human Resources. Hearings on "The Coming Decade: Women and Human Resources." *Congressional Information Services Index* 7: 581–703, July 1979.
(37) Hunt, V. *The Health of Women at Work*. Evanston, Illinois: Northwestern University Program on Women, 1977.
(38) Stewart, A. "A Note on the Obstetric Effects of Work During Pregnancy." *British Journal of Preventive and Social Medicine* 9: 159–161, 1965.
(39) The American College of Obstetrics and Gynecology. *Guidelines on Pregnancy and Work*. Washington, D.C.: U.S. Government Printing Office, 1977.
(40) U.S. Department of Labor, Occupational Health and Safety Administration. *General Industry Safety and Health Standards*. OASH Report No. 2206, June 1974.
(41) U.S. Department of Health, Education, and Welfare, National Institute for Occupational Safety and Health. *Annual List of Toxic Substances, 1977*.
(42) Cantarow, A. and M. Trumper. *Lead Poisoning*. Baltimore: Williams and Wilkins, 1944.
(43) U.S. Department of Health, Education, and Welfare, National Institute for Occupational Safety and Health. "Occupational Exposure to Waste Anesthetic Gases and Vapors." NIOSH Report No. 77-140, March 1970.

(44) Knill-Jones, R., B. Newman, and A. Spence. "Anesthetic Practice and Pregnancy—Controlled Survey of Male Anesthetists in the United Kingdom." *The Lancet* 2: 07–09, 1975.
(45) Grosch, D. "Effects of Toxicants on Reproductive Performance." *Essays in Toxicology*, 7: 2–28, 1976.
(46) Cimons, M. "Occupational Health vs. Civil Rights for Women." *The New Republic*, May 21, 1977.
(47) U.S. Department of Health, Education, and Welfare, Public Health Service. *Healthy People. The Surgeon General's Report on Health Promotion and Disease Prevention.* Washington, D.C.: U.S. Government Printing Office, 1979.
(48) U.S. Department of Health, Education, and Welfare, Public Health Service, Office of the Assistant Secretary for Health, Office on Smoking and Health. *Smoking and Health: A Report of the Surgeon General.* Washington, D.C.: U.S. Government Printing Office, 1979.
(49) Meyer, M. B. "Effects of Maternal Smoking and Altitude on Birth Weight and Gestation." In D. M. Reed and F. J. Stanley, eds., *The Epidemiology of Prematurity.* Baltimore-Munich: Urban & Schwarzenberg, 1977, pp. 81–104.
(50) Department of Health, Education, and Welfare, Office of the Assistant Secretary for Health, Public Health Service Office on Smoking and Health. *The Health Consequences of Smoking for Women: A Report to the Surgeon General.* January 14, 1980.
(51) Guttentag, M., and S. Salasin, *et al. The Mental Health of Women: Fact and Fiction.* New York: Academic Press.
(52) Weissman, M. M. and G. L. Klerman. "Sex Differences and the Epidemiology of Depression." *Archives of General Psychiatry* 34: 98–111, 1977.
(53) Gove, W. R. "The Relationship Between Sex Roles, Marital Status and Mental Illness." *Social Forces* 51: 34–44, 1972.
(54) U.S. Department of Health, Education, and Welfare, Public Health Service, National Center for Health Statistics. *Health—United States, 1979,* Publication No. (PHS) 80-1232.
(55) Belle, D. Memorandum to Members for the National Advisory Committee for the Stress and Families Project, October 24, 1978.
(56) Sigal, S., and H. Yakren. *A Child's Journey.* New York: McGraw Hill, 1978.
(57) National Center for Health Statistics. *Data from the National Health Survey.* "Current Estimates from the Health Interview Survey, United States, 1976." Series 10, No. 119. Washington, D.C.: U.S. Government Printing Office, 1977.
(58) National Center for Health Statistics. *Advance Data from Vital and Health Statistics.* "Access to Ambulatory Health Care: United States, 1974." Washington, D.C.: U.S. Government Printing Office, 1978.
(59) Pearse, W. H., and R. C. Mendenhall. "Manpower for Obstetrics-Gynecology: Characteristics of Patients; Their Diagnosis and Care." Chicago: American College of Obstetricians and Gynecologists, 1978.
(60) U.S. Department of Health, Education, and Welfare, Public Health Service, National Center for Health Statistics. "Provisional Statistics, Annual Summary for the U.S., 1978." *Monthly Vital Statistics Report* 26(13), August 13, 1979.
(61) Kessel, S. "Cesarean Section: Indications, Risks, and Benefits," a report to the Surgeon General, July 1979
(62) National Center for Health Statistics. "Prenatal Care, United States, 1969–1975." *Vital and Health Statistics* Series 21, No. 33. DHEW Publication No. (*PHS*) 78–1911. Hyattsville, Md.: Public Health Service, September 1978.
(63) Pharoah, P. O. D. and J. N. Morris. "Postneonatal Mortality." *Epidemiologic Reviews* 1: 170–183, 1979.
(64) Shapiro, S., M. C. McCormick, B. H. Starfield, *et al.* "Relevance of Correlates of Infant Deaths for Significant Morbidity at 1 Year of Age." *American Journal of Obstetrics and Gynecology* 36: 363–373, 1980.
(65) Jones, R. A. K., M. Cummins, and P. A. Davies. "Infants of Very Low Birthweight." *The Lancet*, June 23, 1979, pp. 1332–1335.
(66) Eisner, V., J. V. Brazie, M. W. Pratt, and A. C. Hexter. "The Risk of Low Birthweight." *American Journal of Public Health* 69: 887–893, 1979.
(67) National Center for Health Statistics. "A Study of Infant Mortality From Linked Records By Birth Weight, Period of Gestation, and Other Variables United States, 1960 Live-Birth Cohort." *Vital and Health Statistics*, Series 20-12. DHEW Publication No. (PHS) 79-1055. Hyattsville, Md.: Public Health Service, Office of Health Research, Statistics, and Technology, May 1972.
(68) Hack, M., A. A. Fanaroff, and I. R. Merkatz. "The Low-Birth-Weight Infant—Evolution of a Changing Outlook." *The New England Journal of Medicine* 301: 1162–1165, 1979.

(69) Department of Health, Education, and Welfare, National Institutes of Health. *Antenatal Diagnosis.* DHEW Publication No. 79-1973, April 1979.
(70) World Health Organization. *A WHO Report on Social and Biological Effects on Perinatal Mortality,* Vol. 1. Report on an International Comparative Study sponsored by the World Health Organization, 1978.
(71) Stewart, A. L. "The Survival of Low Birth Weight Infants." *British Journal of Hospital Medicine,* September 1977.
(72) Lee, K. S., N. Paneth, and L. M. Gartner. "Neonatal Mortality: An Analysis of the Recent Improvement in the United States." *American Journal of Public Health* 70: 15–22, 1980.
(73) Howard and Eddinger. *School-Age Parents: A Health Approach.* Washington, D.C.: Consortium on Early Childbearing and Childbearing, 1973.
(74) Lawrence W. Green. "National Policy in the Promotion of Health." Keynote address, the Regional Forum on Community Health Promotion, Philadelphia, Pa., September 25, 1979.
(75) Gold, E. M. "Interconceptual Care," in *Proceedings of AMA National Conference on Infant Mortality.* Chicago: AMA, 1967, pp. 33–38.
(76) Barnes, F. E. F., ed. *Ambulatory Maternal Health Care Family and Planning Services.* American Public Health Administration, 1978.
(77) R. L. Associates. *Public Attitudes Toward Birth Control, Sex Education, and Abortion.* New York: Planned Parenthood Federation of America, Inc., 1979.
(78) The American College of Obstetricians and Gynecologists. *Standards for Ambulatory Obstetrical Care.* 1977
(79) National Academy of Science, Institute of Medicine. *Infant Death: An Analysis by Maternal Risk and Health Care.* Washington, D.C.: IOM, NAS, 1973.
(80) Klaus, M. H. and J. H. Kennell. *Maternal Infant Bonding.* St. Louis: C.V. Mosby, 1976.
(81) Dingley, E. F. "Birthplace Alternatives." *Oregon Health Bulletin* 55: 1–4, 1977.
(82) Boston Women's Health Book Collective. *Proceedings of 1977 Conference on Women and Health,* West Somerville, Me., 1975, p. 57.
(83) American College of Obstetricians and Gynecologists. "Health Department Data Show Danger of Home Births." News release. Chicago, 1978.
(84) Mehl, L. E. "The Outcome of Home Delivery Research in the United States," in Kitzinger, S. and S. A. Davis, eds., *The Place of Birth.* New York: Oxford University Press, 1978, pp. 93–117.
(85) Hazell L. D. "A Study of 300 Elective Home Births." *Birth and the Family Journal* 2: 11–18, 1975.
(86) Ernst, E. M. K., and K. A. Gordon. "53 Years of Home Birth With the Frontier Nursing Service, 1925–1978," in Stewart and Stewart, eds., *Compulsory Hospitalization: Freedom of Choice in Childbirth.* Marble Hill, Mo.: NAPSAC, 1979, pp. 505–516.
(87) Faison, J. B., B. J. Pisan, R. G. Douglas, G. S. Craner, and R. W. Lubic. "The Childbearing Center: An Alternative Birth Setting." *Obstetrics and Gynecology* 54: 527–532, 1979.
(88) National Foundation—March of Dimes. *Toward Improving the Outcome of Pregnancy: Recommendations for the Regional Development of Maternal and Perinatal Health Services.* National Foundation—March of Dimes, 1275 Mamaroneck Avenue, White Plains, New York, 10605, 1976, page v.
(89) Fleck, A. C., S. Anderman, and M. G. Medvesky. *Hospital Size and Outcomes of Pregnancy.* Albany, New York: New York State Department of Health, October 20, 1977.
(90) Rooks, J. B., S. H. Fischman, E. Kaplan, P. Lescynski, G. Morgan, and J. Witek. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, 1978.
(91) Danforth, David N., ed. *Obstetrics and Gynecology,* 3rd ed. New York: Harper and Row, 1977.
(92) Pritchard, J. A. and P. D. MacDonald, eds. *William's Obstetrics,* 15th ed. New York: Appleton Century-Crofts, 1976.
(93) Jensen, Paul A. and Leonard A. Aaro. "Cesarean Section: Review of a 10-Year Series." *Mayo Clinic Proceedings* 40: 338–347, 1965.
(94) U.S. Department of Health, Education, and Welfare, Public Health Service, National Center for Health Statistics. Health—United States—1978. Publication No. (PHS) 78-1232, December 1978.
(95) Marieskind, Helen I. "An Evaluation of Caesarean Section in the U.S." Washington, D.C.: Department of Health, Education, and Welfare, June, 1979.
(96) Barclay, David L. "Cesarean Hysterectomy, Thirty Year's Experience." *Obstetrics & Gynecology* 35, no. 1, January, 1970.
(97) Lawaetz, O. and H. K. Jensen. "Survey Radiography of Abdomen Following Caesarean Section, with Particular Reference to Caecal Diameter and the Presence of Free Subdiaphragmatic Gas." *Acta Obstet Gynecol. Scand* 55, 1976.
(98) Mulla, Nejdat and James Bates. "Cesarean Section in General Community Hospital." *American Journal of Obstetrics and Gynecology,* September, 1961.

(99) Stevenson, Charles S., Charles A. Behney, and Norman F. Miller. Maternal Death from Puerperal Sepsis Following Cesarean Section: A 16-Year Study in Michigan. "*Obstetrics and Gynecology* 29, no. 2, February, 1967."
(100) Green, Stephen L. and Felix A. Sarubbi. "Risk Factors Associated with Post Cesarean Sections and Perinatal Mortality." *American Journal of Obstetrics and Gynecology*, February, 1958.
(101) Avery, Mary Ellen. "Does Delivery by Section Matter to the Infant?" *New England Journal of Medicine* 285: 917–918.
(102) Hall, J. Edward, Schuyler G. Kohl, and H. R. Schecter. "Current Aspects of Cesarean Sections and Perinatal Mortality." *American Journal of Obstetrics and Gynecology*, February, 1958.
(103) Benson, Ralph. C., Frank Shubeck, William H. Clark, Heinz Berendes, William Weiss, and Jerome Deutschberger. "Fetal Compromise During Elective Cesarean Section." *American Journal of Obstetrics and Gynecology*, March 1, 1965.
(104) Johnston, Lloyd. W. "Cesarean Sections in Non-Teaching Hospitals." *The Canadian Medical Association* 90, No. 20., May 16, 1964.
(105) Bryant, Richard. "Cesarean Section in Cincinnati, Ohio, 1950–1959." *American Journal of Obstetrics and Gynecology* 81, no. 3, March, 1961.
(106) Fitzgibbon, Henry. "Vaginal Delivery After Previous Cesarean Section." *Canadian Medical Association Journal* 85: November 25, 1961.
(107) Case, Barbara D., R. Corcoran, Sir Norman Jeffcoate, and G. H. Randle. "Caesarean Section and its Place in Modern Obstetric Practice." *Journal of Obstetrics and Gynaecology, British Commonwealth* 78, March 1971, pp. 203–214.
(108) Caire, John B. "Are Current Rates of Cesarean Justified?" *Southern Medical Journal* 71(5).
(109) Kohl, Schuyler G., Jessie E. Parkinson, and Marvin A. Lavenhar. "The Hartford Community Obstetrical Study." *American Journal of Obstetrics and Gynecology*, April 1, 1962.
(110) U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health. *The Collaborative Perinatal Study: The Women and Their Pregnancies*. W.B. Saunders, 1972.
(111) Schmitz, H. E. and C. L. Gajewski. *American Journal of Obstetrics and Gynecology* 61: 1232, 1951.
(112) Grattan-Smith, Maruees. "Caesarean Section Follow-Up Survey—New South Wales, 1968–1969." *The Medical Journal of Australia*, April 17, 1971.
(113) Hammouda, A. A. "Cesarean Section in the Young Gravida: A Ten Year Analysis." *American Journal of Obstetrics and Gynecology* 100: 267–269, January 15, 1968.
(114) McGarry, James A. "The Management of Patients Previously Delivered by Caesarean Section." *Journal of Obstetrics and Gynaecology, British Commonwealth*, February 1969, pp. 137–143.
(115) Crenshaw, Jr., D.E. Darnell Jones, and Roy T. Parker. "Placenta Previa: A Survey of Twenty Years Experience With Improved Perinatal Survival by Expectant Therapy and Cesarean Delivery." *Obstetrics and Gynecological Survey* 28(7): 461–470, 1973.
(116) Podowitz, Paul, Ralph M. Schwartz, and Morley Goldberg. "Perinatal Mortality in Primary Cesarean Section." *Obstetrics and Gynecology* 14(6): December, 1959.
(117) Van Praagh, Ian G. and Harold M. M.Tovell. "Primary Cesarean Section in the Multipara." *Obstetrics and Gynecology* 32(6): 813–825, 1968.
(118) Fianu, Stefan. *Fetal Mortality and Morbidity Following Breech Delivery*. Department of OBSGYN, Karolinska Institutet, Sabbatsberg Hospital, Stockholm, Sweden, 1976.
(119) Brenner, W. E., R. D. Bruce, and C. H. Hendricks. "The Characteristics and Perils of Breech Presentation." *American Journal of Obstetrics and Gynecology* 118(5): 700–712, March 1, 1974.
(120) Dillon, James R. "A Fifteen Year Survey of Multiple Cesarean Sections." *American Journal of Obstetrics and Gynecology*, December 1, 1964.
(121) Levine, William. "Thirty-Year Survey of Cesarean Section." *Obstetrics and Gynecology* 19(1), January, 1962.
(122) "Caesarean Section and Respiratory Distress Syndrome." *British Medical Journal*, April 24, 1976, pp. 978–979.
(123) Spellacy, W. N., C. S. Mahan, and A. C. Cruz. "The Adolescent's First Pregnancy: A Controlled Study." *Southern Medical Journal* 72: 768, 1978.
(124) Hughey, Michael J., Robert E. LaPata, Thomas McElin, and Richard Lusky. "The Effect of Fetal Monitoring on the Incidence of Cesarean Section." *Journal of Obstetrics and Gynecology* 49(5), May 1977.
(125) Hellegers, Andre E. "Fetal Monitoring and Neonatal Death Rates." *The New England Journal of Medicine*, August 17, 1978.
(126) Hon, E. H. "Apparatus for Continuous Monitoring of the Fetal Heart Rate." *Yale Journal of Biology and Medicine* 32: 397–399, 1960.

(*127*) Overturf, G. D. and G. Balfour. "Osteomyelitis and Sepsis, Severe Complications of Fetal Monitoring." *Pediatrics* 55: 244–247, 1975.

(*128*) Turbeville, D. S., R. E. Heath Jr., F. W. Bowen Jr., *et al.* "Complications of Fetal Scalp Electrodes: A Case Report." *American Journal of Obstetrics and Gynecology* 122: 530–531, 1976.

(*129*) Golden, S. M., G. B. Merenstein, W. A. Todd. "Disseminated Herpes Simplex Neonatorim: A Complication of Fetal Monitoring." *American Journal of Obstetrics and Gynecology* 129: 917–918, 1977.

(*130*) Tutera F. and R. L. Newman. "Fetal Monitoring: Its Effect on Perinatal Mortality and Caesarean Section Rates and Its Complication." *American Journal of Obstetrics and Gynecology* 122: 750–754, 1975.

(*131*) Haverkamp, A., M. Orleano, *et al.* "A Controlled Trial of the Differential Effects of Intrapartum Fetal Monitoring." *American Journal of Obstetrics and Gynecology.*

(*132*) Schwarcz. R., O. Althabe, R. Belitzky. "Fetal Heart Rate Patterns in Labors With Intact and With Reputured Membranes." *Journal of Perinatal Medicine* 1: 153–165, 1973.

(*133*) Banta, H. David, and Stephen B. Thacker. *Costs and Benefits of Electronic Fetal Monitoring: A Review of the Literature.* Office of Technology Assessment, Congress of the United States, Washington, D.C., 1979.

(*134*) Schifrin, Barry S. "Fetal Heart Rate Monitoring During Labor." *Journal of the American Medical Association* 222(2), October 9, 1972.

(*135*) Patek, Eva and Bertil Larsson. "Caesarean Section—A Clinical Study with Special Reference to the Increasing Section Rate. *Acta Obstetricia et Gynecologica Scandinavica* 57: 245–248, 1978."

(*136*) Neutra, R. R., S. E. Fienberg, S. Greenland, and E. A. Friedman. "Effect of Fetal Monitoring on Neonatal Death Rates." *The New England Journal of Medicine* 299(7), August 17, 1978.

(*137*) Paul, Richard H., James R. Huey, and Carl F. Yaeger. "Clinical Fetal Monitoring—Its Effect on Cesarean Section Rate and Perinatal Mortality: Five-Year Trends." *Postgraduate Medicine* 61, April 1977.

(*138*) Beard, R.W. "The Detection of Fetal Asphyxia in Labor." *Pediatrics* 53(2), February 1974.

(*139*) Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health. "Antenatal Diagnosis." A Consensus Development Conference sponsored by the National Institute of Child Health and Human Development, Masur Auditorium, March 5, 6, 7, 1979.

BIBLIOGRAPHY

Sources for the Needed Health Services section

The American College of Obstetricians and Gynecologists. *Standards for Ambulatory Obstetrical Care.* 1977.

The American College of Obstetricians and Gynecologists. *Standards for Obstetric-Gynecologic Services.* 1974.

The American Academy of Pediatrics. *Standards and Recommendations for Hospital Care of Newborn Infants.* 1977.

Prichard, J. A. and P. C. Macdonald, eds. *Williams Obstetrics,* 15th ed. New York: Appleton-Century-Crofts, 1976.

Danforth, D. N., ed. *Obstetrics and Gynecology,* 3rd ed. New York: Harper & Row, 1977.

Schaffer, A. J. and M. E. Avery, eds. *Diseases of the Newborn,* 4th ed. Philadelphia: W.B. Saunders Company, 1977.

Barnes, F. E. F., ed. *Ambulatory Maternal Health Care and FamilyPlanning Services.* American Public Health Association, 1978.

THE HEALTH NEEDS OF INFANTS AND CHILDREN UNDER 12

by
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INTRODUCTION

This background paper on infants and children summarizes what is known about health services needed by children in the United States from infancy to adolescence. To some extent, the difficulty of the task was eased by the consensus existing among leaders in the child health field regarding goals, health problems, and needed corrective actions.

Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention, published in July 1979, brought together much of the present thinking about priorities for child health services in the United States and emphasized the need for disease and injury prevention services.

> Further improvements in the health of the American people can and will be achieved not alone through increased medical care and greater health expenditures but through a renewed national commitment to efforts designed to prevent disease and to promote health (*1*).

Children are considered an ideal target population for whom investments in preventive health care will yield high returns.

Definition of Health Services Needed by Children

For purposes of this paper, "health services needed by children" are broadly defined as (1) the traditional personal health services such as health assessments, immunizations, and diagnostic and treatment services for illness; (2) supportive and health-promoting services for individuals or families, such as homemaker services, home health care, child care and

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school feeding programs, fitness programs, health education and counseling, outreach, and advocacy to promote access and appropriate use of health services; and (3) preventive services with communitywide impact, such as fluoridation of water, improved safety of playgrounds and buildings, and communitywide health planning.

A service is said to be "needed" if its absence is believed to put a significant number of individuals at risk of suffering serious adverse consequences. This "risk approach" can be used to formulate rational and measurable child health objectives, even when resources are limited (*2*). It addresses needs of the entire population, as well as those of vulnerable subgroups.

Risk Measurement and Reduction[1]

Risks can be measured systematically and objectively by examining the probability of specified outcomes, but the acceptability of a risk is based on personal and social values (*3*). Decisions about the acceptability of risk are very fragile and subject to clashes of conflicting values. In the past, children have been knowingly exposed to life- or health-threatening risks because society has placed a higher value on personal liberty or costs than on the welfare of children. For example, opposition to seatbelts on school buses is based on the installation cost and inconvenience of use despite their established safety benefit.

Health risks are assessed using a variety of measures of health status. One technique is based on measurement of five adverse outcomes: death, disease, disability, discomfort, and dissatisfaction (*4*). Another measures a child's health status on a continuum of outcomes ranging from the positive to the negative: longevity, absence of disease, activity, satisfaction, comfort, resilience, and achievement (*5*). Resilience and achievement are particularly useful parameters because they relate to the child's potential for future development.

Freedom of Choice in Use of Health Services

A considerable degree of choice exists in the use of preventive health services; but one individual's freedom of choice often has an impact on other individuals. For example, all members of a health insurance plan must pay for medical care expenses incurred because some of the insured chose not to use their seatbelts, not to install smoke detectors in their homes, or not to obtain appropriate immunizations. People with dental insurance share the cost of a community's decision not to fluoridate community drinking water or some of the insured not taking fluoride supplements. Society's right to influence choices made for children is

[1]For a list of known risks to child health, see Appendix.

frequently justified on the grounds that: (1) the child is unable to exercise self-determination and (2) actions taken by others (usually adults) may cause a child's injury or illness, with consequent demands for medical services, the cost of which may be borne by the public for many years.

Access to Health Service

Many deterrents to the use of health services exist. For some people, life is so crisis oriented that preventive care is perceived as irrelevant. Barriers in the health care system include health care facilities with inconvenient locations or hours (causing loss of work and pay), long waits for service, and insensitivity to personal needs. Despite their greater need for health services, the poor often confront more barriers and receive less competent health care than those of greater means. Services for the poor are often provided in separate facilities and by different providers than those for the more affluent. Separate is rarely equal.

Clinical Efficacy

Health services that do not reduce or eliminate risk are not efficacious. However, benefits of a service may be difficult to measure. For children, it may take a lifetime to collect the necessary data to determine benefits.

In the following sections, this paper lists and discusses children's health services that have been determined or are generally believed to be effective in the reduction of significant health risks. No attempt has been made to set priorities among them, although the reader may infer some priorities based on numbers of children affected and severity of risks involved.

Socioeconomic Factors and Health

Income is probably the single most important factor correlated with health risk. Being poor means living in poor housing with erratic heating, broken or inadequate plumbing, and vermin. It means little food, food of poor quality, dirt, noise, stress, and chaos.

> Children in poor families, and especially children in poor families with only one parent, are in poorer health and are more likely to have limitations than children in higher income families. Medical care alone cannot solve all of the problems, but immunization, glasses for children who are unable to see the front of the room in school, the filling of decayed teeth, and prompt diagnosis and treatment of minor problems to prevent debilitating complications could certainly help reduce problems among children in poor families (*6*).

Ethnic and Cultural Considerations

Cultural characteristics are also determinants of need for health services. Families from different cultural backgrounds have different perceptions of health and sickness, and of needed and acceptable health services. Until 1979, the Amish community in Pennsylvania would not accept immunization. When a polio outbreak occurred, the resistance to immunization diminished.[2]

Specific health care needs are also identified with certain groups. For instance, an increased incidence of anemia and low height-for-age have been found among the Mexican-American population (*7*). Newly arriving Indochinese refugees are expected to have special problems with tuberculosis and parasitic diseases (*8*). These refugees are being settled in many States, and their needs require special attention.

Although these cultural subgroups may not be present in sufficient numbers to have a significant impact on health service needs in many States, local health services in "melting pot" States like California must be modified if they are to meet the needs of such groups.

DEMOGRAPHIC PROFILE OF CHILDREN IN THE UNITED STATES[3]

Numbers, Race, and Geographic Distribution

In 1978, 39 million children (approximately 18 percent of the total population) were under age 12 in the United States (table 1). Of these, 8 percent were infants under age 1. About 83 percent of the children were listed as white, 15 percent were listed as black, and 2 percent were listed as of other racial backgrounds.

As shown in table 2, in 1975–1976, 52 percent of the black children lived in the South, while 54 percent of the children of other minority groups lived in the West. Well over half (68 percent) of all children lived in Standard Metropolitan Statistical Areas (SMSA's) in the mid-1970's, and more than one quarter (29 percent) were inside central cities (table 3). Although 67 percent of white children and 75 percent of black children were in SMSA's, white children were much more likely to live in suburbs or noncentral city areas (43 percent). The majority of black children (56 percent) live in central cities. The children of other races are also highly concentrated in SMSA's (84 percent), although only 39 percent reside in central cities. Children who live in non-SMSA areas are almost exclusively nonfarm residents; whites comprise the largest percentage living on farms—a mere 3 percent.

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[2]Gens, R. Personal communication: Pennsylvania Department of Health, September 1979.

[3]This section was prepared by Mary Grace Kovar and Denise J. Meny.

TABLE 1. Estimate of the Population Aged 0–11 by Age, Sex, and Race: United States, 1978 (numbers in thousands)

Age	All Races			White			Black			Other Races		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All ages	39,275	20,060	19,218	32,417	16,597	15,820	5,912	2,982	2,932	947	478	466
Under 1 year	3,197	1,636	1,561	2,647	1,357	1,290	468	237	231	82	42	40
1–2 years	6,114	3,126	2,989	5,013	2,569	2,445	934	472	462	167	85	82
3–4 years	6,050	3,093	2,956	4,964	2,544	2,420	931	472	460	155	77	77
5–7 years	9,967	5,090	4,879	8,186	4,190	3,996	1,529	771	759	252	126	124
8–11 years	13,947	7,115	6,833	11,607	5,937	5,669	2,050	1,030	1,020	291	148	143

TABLE 2. Percent of Children Living in Four Geographic Regions: United States, 1975–1978

Race	Northeast	North Central	South	West
All races	22.1	26.4	33.2	18.2
White	22.7	27.7	30.2	19.5
Black	19.5	21.1	51.8	7.6
All other	18.3	11.6	16.3	53.7

SOURCE: Unpublished data from Health Interview Survey, National Center for Health Statistics, Public Health Service.

Family Structure

At mid-decade, more than three-quarters of American children lived with both biological parents, while 15 percent lived with their mother only. Eighty-three percent of the white children lived with both parents, while less than 50 percent of the black children did so. For the children of other races, this figure was 80 percent. For the total of all children, 12 percent of white children, 34 percent of black children, and 14 percent of the children belonging to other races lived with the mother only (table 4).

Utilization of Health Services

Children in low-income families, black children, children in central cities or outside metropolitan areas, and children living in the South or West are less likely than others to have a regular source of health care. Black children, children in low-income families, and children in central cities are much more likely than others to rely on institutions for their care.

On average, among children with at least one contact per year with a doctor (including visits and telephone consultations) those under age 6 have about 6.4 contacts per year; elementary school age children have

TABLE 3. Percent of Children in and Outside Metropolitan Areas: United States, 1976

	SMSA[1]			Outside SMSA		
Race	Total	Outside Central City	Central City	Total	Nonfarm	Farm
All races	68.2	28.6	39.6	31.8	29.1	2.7
White	66.7	23.4	43.3	33.3	30.3	3.0
Black	74.5	55.8	18.7	25.5	24.0	1.5
All other	84.3	39.1	45.2	15.7	13.4	2.3

[1] Standard Metropolitan Statistical Area.

SOURCE: Unpublished data from Health Interview Survey, National Center for Health Statistics, Public Health Service.

TABLE 4. Selected Demographic Characteristics of Children Under Age 12 by Race: United States, 1975–1976

Characteristic	All	White	Black	Other Races
Income $5,000	12.8	9.4	31.3	14.5
Income $15,000 plus	32.7	36.1	13.4	38.8
Education of head, 8 years or less	14.8	12.9	25.2	16.9
Education of head, college grad	16.8	18.8	4.4	32.9
Both parents present	77.7	83.3	46.9	80.0
Mother only	15.2	11.8	33.8	13.8
No parent head	6.6	4.4	18.8	5.5

SOURCE: Unpublished data from Health Interview Survey, National Center for Health Statistics, Public Health Service.

about 3.3 contacts per year. Only rarely does a preschool-age child have no medical contact during a year.

More than 90 percent of the preschool children had a usual source of care, as reported in a survey of their parents; 80 percent had a private doctor, just over half (54 percent) of whom were pediatricians. Hospital outpatient departments were the regular sources of care for about 6 percent of the children, and other clinics or places for about 4 percent.

Three out of every four young children had received ambulatory care from a private doctor during the year. Approximately half of these received all their care from private doctors and one-quarter had received all their care from hospital outpatient departments, emergency rooms, or clinics. The remaining 8 percent received all of their care in institutional settings.

The most common diagnosis among young children was a respiratory problem. Ear conditions were next most common, followed by infections and parasitic diseases. These three categories accounted for 67 percent of infants' visits and 72 percent of visits by children ages 1–5 during which a diagnosis was made.

Elementary school age children (6–11 years), although somewhat less likely than the younger children to have a regular source of care, were equally likely to have a private doctor. In this case, however, the doctor was more likely to be a general or family practitioner than a pediatrician. Like the younger children, the elementary school age children who had a regular source of care but not a private physician were more likely to rely on hospitals than freestanding clinics for their care.

Approximately 58 percent of the 6–11-year-olds had received ambulatory care from a private doctor during the year; 45 percent had received care only from a private doctor and the other 13 percent from institutional facilities as well. About 6 percent received all their care in institutional settings.

The elementary school age children are even less likely than younger children to visit a doctor unless they are ill or injured. Only 18 percent of

all their visits were reported by physicians to be for examination or observation.

Respiratory and ear conditions, although still important, accounted for a smaller proportion of visits to the doctor for children ages 6–11. External causes, such as fractures and lacerations, and skin conditions accounted for a higher proportion of the visits (table 5).

About 17 percent of all medical contacts reported for children under age 18, but 23 percent of the contacts for children under age 1 were telephone contacts. However, in families with incomes under $5,000 only 11 percent of the contacts were telephone contacts, in contrast with 20 percent in families with incomes of $15,000 or more, for whom private physicians were more likely to be the source of care.

Projected Population Estimates and Trends for the United States Population Ages 0 to 11

The future size of the U.S. population under age 12 will be determined almost solely by the number of births that occur, because mortality and migration have little effect on this young population group. In the first population projections shown in table 6, the number of children under age 12 will increase, while in the third, a decline will occur. However, the likelihood that the Series III projection will actually happen is slim. Young women today expect to have about 2.1 children—considerably higher than the 1.7 assumed in the Series III projection. As table 6 illustrates, the population under age 12 in 1978 had already surpassed the projections made for 1980 under Series II and III. If the recent rise in the U.S. birth

TABLE 5. Office Visits to Physicians in Private Practice by Age of Child and Principal Diagnosis: United States, 1975–76

Purpose of Visit	Under 6 Years			6–11 Years
	Total	Under 1	1–5	
All visits	100.0	100.0	100.0	100.0
Examination or observation	32.4	49.4	24.4	18.0
Illness or injury	64.6	48.2	72.4	78.4
Total	100.0	100.0	100.0	100.0
Respiratory	44.3	41.5	45.0	36.7
(AUR)	(28.3)	(27.8)	(28.3)	(19.9)
Ear	15.6	12.2	16.7	10.3
Infectious and parasitic	11.0	13.7	10.0	10.7
External causes	7.1	3.9	8.0	12.1
Skin conditions	6.8	2.1	6.4	9.4
Ill-defined	3.0	2.4	3.2	3.6

SOURCE: Unpublished data from National Ambulatory Medical Care Survey, National Center for Health Statistics, Public Health Service.

TABLE 6. Population Estimates and Trends for the U.S. Population Aged 0–11: 1970, 1978, 1980, 1990, and 2000 (numbers in thousands)

Year	All Races			White			Black			Other Races		
	Series I	Series II	Series III	Series I	Series II	Series III	Series I	Series II	Series III	Series I	Series II	Series III
1970[1]	—	45,519	—	—	38,458	—	—	6,329	—	—	733	—
1978[1]	—	39,275	—	—	31,417	—	—	5,912	—	—	947	—
1980[2]	41,153	39,246	37,819	33,990	32,372	31,138	6,125	5,856	5,692	1,047	1,017	988
1990[2]	56,038	45,534	38,747	46,920	37,762	31,973	7,552	6,366	5,525	1,566	1,406	1,249
2000[2]	58,276	44,912	36,337	48,290	36,983	29,823	7,982	6,225	5,051	2,004	1,703	1,463

[1]U.S. Bureau of the Census. *Current Population Reports: Series P-25, No. 800.* Estimates of the Population of the U.S. by Age, Sex and Race: 1976–1978, Table 2. Washington, D.C.: U.S. Government Printing Office.

[2]U.S. Bureau of the Census. *Current Population Reports: Series P-25, No. 704.* Projections of the Population of the U.S.: 1977–2050, Tables 7–9. Washington, D.C.: U.S. Government Printing Office.

SOURCE: U.S. Bureau of the Census. *Census of Population, 1970,* U.S. Summary, General Population Characteristics, PC(1) B1, Washington, D.C.: U.S. Government Printing Office, 1972.

rate is more than just a brief phenomenon, the population under age 12 will continue to grow both absolutely and relative to the total U.S. population.

CHARACTERISTICS OF THE POPULATION AND DETERMINANTS OF HEALTH

Common Patterns of Biological and Social Development of Children

The drive to grow, to develop, and to mature is inherent in every child. Children at any given age are at various stages of development within an expected range. There are well documented patterns of growth and development for body tissues, organs and their functions—including renal, lymphoid, dental, gonadal, motor, language, and visual development (*9*). For example, the visual acuity of the average 4-month-old is around 20/200, of the average 2-year-old, 20/40 to 20/50. Twenty-twenty vision may not be achieved until age 6 or 7. For a 3-year-old with 20/50 vision, sequential observations are required to determine if this is a less mature, but normally developing child, or one with a potentially permanent deficit. Because child health status is interpreted against a background of varying patterns of development, sequential observations are very important in the assessment of children.

Developmentally, children are conveniently grouped as follows: newborns and infants (under 1 year of age), toddlers (1–2 ½ years of age), preschoolers (3 or 4 years of age), lower elementary school age children (5–8 years of age), and upper elementary school age children (9–12 years of age).

Infants[4] and Toddlers

For children under 1 year of age, congenital anomalies and the secondary effects of such anomalies are the leading causes of death—accounting for 8,420 deaths in 1977. The second leading cause of infant mortality is the Sudden Infant Death Syndrome (SIDS), which accounted for 4,751 deaths, followed by immaturity which accounted for 3,714 deaths in the same year. Mortality rates per 100,000 live births were 1,412.1 from all causes, 253.1 from congenital anomalies, 142.8 from SIDS, and 111.6 from immaturity.[5]

Although infectious diseases are no longer the major cause of infant deaths, they remain the leading cause of restricted activity for children under age 6 (*10*). Although infants are born with some protective

[4]Health status indicators and health service needs for newborns are included in "A Child's Beginning," in this volume.

[5]These figures were supplied by the National Center for Health Statistics, Division of Vital Statistics, U.S. Public Health Service, DHHS.

antibodies received from their mothers, these maternal antibodies gradually disappear during the first year of life. From birth onward, children build their own supply of antibodies—either in response to infections or through immunization. By age 3 a child's antibody levels are nearly equal to those of an adult. Lower antibody levels during the first 2 years of life make this a natural period of vulnerability to infection. In young children, risk of infection also is increased because distances are short between those places where infectious organisms normally reside innocuously (such as in the nose and mouth) and areas where they can cause significant illness (such as in the middle ear or respiratory tract). Thus both low antibody levels and anatomic features make young children particularly vulnerable to infections.

Whereas small size and immaturity make the very young child vulnerable to illness, rapid growth counters that risk with resilience and capacity for repair. (If growth is hindered by illness, improper feeding, or deprivation, some catch-up growth and development usually occurs when those adverse circumstances cease.) However, there seem to be critical periods when favorable or adverse conditions can have a long-lasting impact.

Dramatic changes occur during the first year of life; body weight more than triples, and the infant progresses from total dependence to becoming independently mobile and responsive to verbal messages. Infants become toddlers when they begin to walk. With increasing independence come the "terrible two's," when children test their skills and develop a sense of themselves as individuals. With abundant energy, they expose themselves to risks, but are unaware of danger. (For this reason, and because of low rates of death from other causes, injuries are the leading cause of death in this age group.)

While building resistance to infectious disease through exposure to organisms in the environment, toddlers experience many minor illnesses, which, if not appropriately managed, can result in permanent impairments. Although it is not possible to protect toddlers from all adverse conditions, ready access to preventive health services and good medical care can reduce the risk of long-term impairment.

Preschoolers

Preschoolers can dress and feed themselves and use the toilet. They are more tractable than toddlers and better able to listen to reason and advice. Role playing, exuberance, vivid imaginations, and unreasonable fears are characteristic. Although children in this age group have a lengthening attention span and enjoy group play, their interest is rarely sustained for longer than 20 or 30 minutes.

For preschoolers, as for all children over age 1, injuries are the most frequent cause of death, and infections the most common cause of restricted activity. In descending order of incidence, the most common causes of fatal injuries are motor vehicle injuries, burns, drowning, choking, falls, and poisoning (*11*). Among children 1–5 years of age, 3,439 died from injuries in 1976—1,291 from motor vehicle injuries and 680

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from burns. The lifetime magnitude of the traffic safety problem is staggering: "One in 60 infants born today will some day die in a traffic accident, and two out of three will be injured."[6]

In addition to immunologic and anatomic features that make young children prone to infection, their behavior increases their exposure to infectious agents. They play in dirt, sand, and other unhygienic places and get bumped, bruised, scraped, and injured frequently. They touch objects contaminated with disease agents and in turn contaminate themselves, other children, or other objects with their dirty hands.

Under the influence of caregivers, young children develop lifetime attitudes about their bodies which are related to their capacity to adapt successfully to the stress of illness, trauma, and physical changes (*12*). Preschoolers are close observers and imitators of adult behavior. Desirable and undesirable behaviors are copied with equal zeal.

The rate of physical change slows progressively from the second to the fifth years, but the expansion of verbal, intellectual, and motor skills; emotional and behavioral expression; and independence take place more rapidly in the first 5 years of life than in any other period. During these years the influences that affect the development of certain human characteristics may have their greatest impact (*13*).

Lower Elementary School Age Children

The range of developmental differences among children entering school is narrower than among preschoolers, but there remain differences in maturity. Children who vary significantly from the norm need the joint and coordinated services of health and education professionals to determine appropriate goals and plan support services to help these children maintain progress.

School-age children are away from home for considerable periods, are exposed to a wide range of influences, and establish peer group identities. Children ages 6, 7, and 8 are eager to develop intellectual tools and to explore the world.

These cognitive changes are reflected in children's changing concepts of health. In one study, only 25 percent of a sample of children 6 years of age answered "yes" when asked whether it is possible to be partly healthy and partly unhealthy at the same time (*14*). A positive response to this question was given by 74 percent of children 9 years of age and by 84 percent of 12-year-olds. In the same study, mental health was considered a part of health by only 2 percent of those 6 years of age, by 15 percent of those 9 years of age, and by 32 percent of those 12 years of age.

Upper Elementary School Age Children

During ages 9–11, the naivete and gullibility of children 6–8 years of age give way to more critical self-direction. Physically, the child grows slowly until the onset of adolescence. Awareness of differences among members

[6]Claybrook, J. Remarks before the National Conference on Child Passenger Protection. Presented in Washington, D.C., December 10, 1979.

of the peer group and a quest for status within the group begin to emerge. Upper elementary school age children live in an expanding world and can visit friends some distance away on their own. They form teams in sports and work persistently to develop physical skills. These characteristics may explain the high incidence of death and injuries associated with motor vehicle travel, water activities, bicycles, sports equipment, and playgrounds, while deaths from other causes remain low.

Although they are less dependent than formerly, upper elementary school age children are readily influenced by authority figures, such as school principals. The granting of privileges and permission still dominate adult-child relationships. Toward the end of this period, children become aware of being "grown up" and try to behave so that others will consider them mature.

This period ends at adolescence—which begins at different ages for different children. Often behavioral changes associated with puberty precede recognizable physical changes. For some girls, adolescent changes begin as early as 9 or 10 years of age. For boys adolescent changes usually do not begin until 12 or 13.

Some Additional Determinants of Child Health Service Needs

Family Dynamics

Very little scientific data is available about the assets and liabilities of the various contemporary family systems, but some family arrangements result in a heavy burden for one parent. Primary responsibility for child rearing, including child health, is usually combined with other roles for mothers in single-parent families and in two-parent families where both parents are employed. Recent studies of dual-career families consistently demonstrate that home responsibility still rests much more on women than on men (*15*). By 1990, 45 percent of children under age 6 are projected to have mothers in the labor force (*16*). Some of the effects of increased maternal employment on child care are mitigated by the declining birth rate, which results in fewer children per family. At the same time, children in today's smaller families have fewer opportunities to observe and learn about child care for their future role as parents.

Contemporary Socioeconomic Dynamics and Health

Because life in contemporary society requires complex skills, the standards for social competence have risen substantially during the past century. Hence, mental retardation and learning disabilities, including dyslexia, have become more problematic (*17*). Techniques for the management of both subtle and overt forms of developmental disability are under investigation, and some services are now available to address these problems.

Stress is correlated with illnesses such as hypertension, heart disease, ulcers, susceptibility to infectious disease, and emotional illness (*1, 18*).

The relationship between stress and illness is two-way—stress may precede illness, but illness can also produce stress (*19*). In many ways, children are windows on family functioning. Their problems often reflect family stress and needs that would otherwise remain hidden behind walls of privacy and endurance. Often, when parents find help for their children, the whole family benefits from linkage to support systems.

Income is probably the single most important factor correlated with health risk, and low income is the single greatest barrier to health care. Not only are psychosocial and psychosomatic problems present in greater abundance among the poor, but the poor also are less likely to have these problems addressed by medical care (*20*).

> To live in urban poverty means to be overcrowded, to live in two or three rooms with seven, eight, ten other people. A ghetto child seldom has a bed to himself, let alone a room of his own. (Poor children are) ... not only inadequately, but badly fed, for the most part. They drink coke more often than milk, eat candy and potato chips oftener than meat and vegetables. Their meals are irregular. They go to school without breakfast, eat where and what they can during the day ... Slum children are made numb by overstimulation (sounds, smells, skin contacts, fighting) (*21*).

Whereas it is estimated that psychosocial problems are present in about 15 percent of all children, 25–50 percent of children whose care is paid for by medical assistance programs have had such problems diagnosed by physicians (*20*). Poor children suffer disability more frequently and are more susceptible to long-lasting handicaps than are more affluent children. The frequency with which poor children are hospitalized is only slightly higher than that of more affluent children, but their length of stay when hospitalized is longer. Further, poor children are less likely to have preventive care.

Subgroups with Special Needs

Foster Children

In 1977 approximately 504,000 American children lived in foster care; 395,000 of these were with foster families, and the remainder were in institutions or group homes (*22*). More than one-fifth of foster children have been living away from their families for more than 6 years. Separation began for nearly half of them when they were less than 6-years-old. Often when children are placed in foster care, previous health service relationships are broken. As a result, health services for foster children are often fragmented among many sources of care with poor recordkeeping and incomplete care. Long distances between parents and children may make visiting difficult, and counseling of natural and foster parents is sometimes assigned to workers from different agencies. The cost of foster care is double that of good quality day care, which would support continuity of family relationships and health care. Because its preventive potential is so great, day care was recommended as an essential service by the Joint Commission on Mental Health in 1969 (*23*). Yet in 1980, day care remains scarce largely because of underfunding.

Handicapped Children

For a discussion of the needs of handicapped and chronically ill children, see "Health Care for Chronically Disabled Children and Their Families," in this volume.

Attitudinal Factors

Consumer expectations are closely related to experience, perceived needs, and satisfaction with health care services. In a study conducted among middle class users of the University of Nebraska Family Health Centers, patients expected a high degree of benefit from checkups, laboratory services, and some screening tests. On the other hand, counseling and health education were not perceived to be necessary components of health care services (*24*).

In a survey of mothers of 1,464 children enrolled in the first, second, and third grades of the Galveston, Tex., public schools, almost all the mothers rated screening tests to detect defects of tuberculosis, hearing, and vision as very important (*25*). Most considered immunization for measles, poliomyelitis, diphtheria, pertussis (whooping cough), and tetanus, as well as health education about sex, tobacco, and drugs very important. In this city—where public health services are of high quality and accessible—more mothers preferred a change from a private health source to a public health source than wished the opposite change. A significantly greater proportion of better-educated mothers from higher socioeconomic levels preferred to share the responsibility for health education with the schools.

In a 1979 study of the attitudes of family members toward health and health care, numerous interesting findings came to light (*26*).

- Product safety was overwhelmingly viewed as a Government responsibility.
- Single-parent families reported economizing more on health-related items than two-parent families.
- The greatest economizing being attempted was on the quality of food purchased and on having dental work done.
- A large majority of respondents indicated that health checkups cost too much for the average family's budget.
- Although most respondents felt parents should have the main responsibility for teaching children good health and nutrition habits, parents said that they did not feel they were models of good health behavior for their children. Among the changes these parents desire in themselves are stopping smoking, exercising regularly, staying calm, losing weight, cutting back on sweets, and eating more balanced diets.
- Forty percent responded that the Government rather than the individual is responsible to see that all Americans have good health care whether they can afford it or not.
- Heading the list of information most wanted were, "where to go for help when needed" and "how to teach children better health and eating habits."

Variations in Access to Service

Children's access to institutional services and the coordination of these services varies greatly from one place to another. For example, the school health service program of Galveston, Tex., has had a far-reaching and favorable impact on health service delivery in that community, whereas the school health system in Philadelphia has been continuously reduced by budgetary cutbacks. Children of parents whose employers offer health maintenance organization coverage in their benefit packages have preventive health services readily available to them, but children of parents who work part-time for the same employer often are not eligible for this coverage. Military dependents may receive highly fragmented services—services from military health facilities are often combined with more convenient but more costly private health services.

Preventive Interventions in Child Health

Disease prevention includes primary prevention (preventing the disease or injury from occurring), secondary prevention (detecting the disease early enough for successful treatment), and tertiary prevention (mitigating the effects of the disease). Among experienced child health and social policy planners, it is agreed that measures to address the health services needs of children should reach beyond traditional health services for sick children and include preventive measures at the individual, family, and community level. Examples of areas where preventive measures can be expected to have high yield include (1) nutrition, (2) fluoridation of drinking water, (3) immunization, (4) modification of the physical environment, (5) health education, (6) modification of health behavior, and (7) mental illness prevention.

Nutrition

Malnutrition in infancy and early childhood has profound effects on mental and physical growth. Not only can malnutrition result in increased susceptibility to infection but it also causes changes in gastrointestinal and endocrine function that result in apathy, loss of energy, and failure to develop physically and intellectually (*27*). Food programs for infants and children are primary measures to prevent malnutrition, and screening for nutritional disorders and their correction is a secondary measure.

Fluoridation

Fluoridation of community water supplies or daily use of fluoride supplements for children until all permanent teeth are fully developed can reduce tooth decay in school-age children by as much as 65 percent, decrease the loss of first permanent molars among children 12–14 years of age by 75 percent, and increase sixfold the number of caries-free children

12–14 years of age (*28, 29*). At no other time of life is this preventive potential available.

Immunization

Because they lack immunologic experience—which may be gained at the cost of serious, or even fatal, illness—infants and children require immunization against infectious diseases. The well-publicized cost effectiveness of the measles vaccine program and the past success of national immunization programs are stellar achievements in primary prevention (*30, 31*).

Modification of Physical Environment

Child passenger deaths and injuries in motor vehicle crashes could be reduced by as much as 60 percent through the use of appropriate infant and child restraints (*32*). Other effective methods of protecting children from injury include installing smoke detectors in homes, reducing the temperature of household hot water, installing impact-absorbing surfaces on playgrounds, and using childproof tops on containers for medicine and other toxic substances.

Health Education

Despite the malleability of young children and their willingness to learn, and despite the importance of establishing patterns that may have a lifelong impact on health, health education has had only limited effectiveness—perhaps because parents' reported perceptions that they are poor role models for healthful behavior are correct. However, evaluation of attempts to introduce an innovative school health curriculum, designed by the Seattle and Berkeley School Districts with the support of the Bureau of Health Education, indicate that behavioral changes can be achieved (*33*).

Modification of Health Behavior

Modification of health behavior seems to be more effective than counseling and information dissemination for the promotion of long-lasting changes (*34*). By using behavior modification techniques, undesirable behaviors can be reduced while desirable behaviors are increased. "Self-control" can be reinforced with appropriate stimuli based on the expectations of children at certain developmental stages. The child thereby becomes an active participant in shaping the desired behavior. For example, toddlers who are eager to demonstrate their ability to be independent can be taught to wash their hands before eating and to use car restraints on their own; preschoolers can participate in nutritious menu planning and shopping; and school age children can benefit from training correlated with measured progress in physical fitness programs in

the same way that their progress in cognitive skills is encouraged in the school environment.

Mental Illness Prevention

In 1979, The President's Commission on Mental Health recommended a number of important measures for preventing mental illness, including the recognition and strengthening of both the natural informal and formal networks to which people belong and upon which they depend (*22*). Many community networks revolve around the care of children—including health care programs, day care centers, schools, recreation and religious education programs. These programs offer ideal opportunities for the identification of children and families who need special services, and such programs may also be the most appropriate settings for the delivery of mental health services.

NEEDED HEALTH SERVICES FOR CHILDREN

Services Needed by All Children[7]

Services for Individual Children

Identification of Conditions Associated with Sudden Infant Death

Sudden Infant Death Syndrome (SIDS) claims the lives of between 6,000 and 7,000 infants per year, usually between the second and fourth months of life (*35*). Although no single cause has been shown to be responsible for these deaths, a promising measure is the use of apnea monitoring devices for infants considered to be at risk. Although the routine use of such devices remains controversial, careful observation of neonates to identify those who go unusually long periods without breathing (apnea), or who have abnormalities of muscle tone and other neurologic abnormalities may be helpful in reducing the death rate from SIDS (*36, 37*). SIDS is also associated with failure to gain weight, certain metabolic factors, and mothers who smoke (*37*). Subsequent sibling of SIDS babies run increased risk from the syndrome, making this group and all near-miss cases of SIDS targets for intervention through monitoring programs (*38*).

Management of Illness

Treatment for injuries, common infectious diseases, and for diseases detected by routine health examinations is needed. Although the need for treatment services is rarely disputed, their availability is still not universal. Efforts to detect disease are wasted if treatment for the conditions is not provided.

[7]Services for pregnant women and newborns are discussed in "A Child's Beginning," in this volume.

Health History

About 90 percent of health problems are revealed by a comprehensive and regularly updated health history, developed from a health professional's interview with the patient and the patient's parents. Guidelines and questions have been developed for eliciting such health and nutrition history information (*39–41*). Because facts become blurred or forgotten with time, parents need to be encouraged to keep a list of key health data for their children so that the child's health history can be effectively used to provide good care.

Measurements and Physical Growth

Because variation from the normal growth pattern is often an early sign of a serious physical problem—especially in a rapidly growing infant—measurements of height and weight (for children of all ages) and of head circumference (for children at least up to age 2) should be taken and compared with data on healthy children. Recently the World Health Organization recommended that height-for-age and weight-for-height be used as primary indicators of nutritional status among children (*42*). A survey of preschool children in the United States in the late 1960's showed that body measurements correlated well with measures of nutritional status (*43*). The Ten State Nutrition Survey showed that height, weight, and other body measurements are useful in identifying children suffering from nutritionally induced growth problems (*44*). Although malnourished children are not limited to low socioeconomic groups, they are most likely to be found there. A 1970 study of poor, black preschool children in Memphis showed that half the children were below the 25th percentile for height and weight (*45*).

Screening, Followup Diagnostic, and Treatment Procedures

Screening procedures for children should be low cost and easily performed to separate the population into those who possibly have a health problem and those who probably do not. To be cost effective, they should detect an undesirable condition that is fairly widespread in the population or that is extremely costly to treat, and one for which effective treatment is available. Following are examples of useful screening programs.

Blood Pressure. Recent evidence suggests that children with blood pressure measurements in the upper ranges of normal for their age group may be at risk for hypertension and associated diseases as adults (*46*). However, improperly conducted routine screening in children may result in unnecessary and costly diagnostic studies, mislabeling at an early age, and inappropriate use of drugs whose long-term effects on growth are unknown (*47, 39, 44*). Currently it seems prudent to measure blood pressure concurrently with other growth measurements after 3 years of age. Treatment should be reserved for significant aberrations (*48*).

Anemia. Anemia in children—which affects up to half of poor children in some Head Start programs—may reduce resistance to infection, attention span, motivation to learn, and overall intellectual performance, and cause apathy and fatigue (*49–51*). The detection of anemia is simple and inexpensive; iron therapy usually results in correction of anemia with an associated increase in energy and resumption of developmental progress. Screening, diagnosis, and treatment services for anemia are needed by the end of the first 6 months, in the preschool period, and again before the adolescent growth spurt, to ensure adequate iron stores for the developmental needs of these periods.

Vision. Between 5 and 6 percent of preschool children have one or more vision defects, a prevalence that increases to 20–25 percent during school age (*52, 53*). Because uncorrected visual deficits in the preschooler may result in permanent loss of vision, vision screening needs to be early and frequent. In view of the steady increase in vision problems with age and the correlation of vision with learning, vision screening should be performed at age 3 or 4 and every other year for school-age children. Followup diagnosis and correction are, of course, necessary at any age.

Hearing. Children with hearing impairments may suffer profound and longlasting effects; they are often mislabeled slow learners or mentally retarded. Despite variations in reported prevalence of from 3 to 20 percent (up to 50 percent in "learning disabled" children) depending upon age and screening method, hearing impairment is sufficiently common to warrant screening of infants and children (*54–56*). After age 3 screening should be performed every year for the remainder of childhood (*52*). Because medical, surgical, and educational methods can be effective in the reduction of hearing impairments, hearing screening is a sound preventive approach if followed by corrective care (*57, 55*).

Developmental and Behavioral. Over 17 percent of children have mental retardation, seizure disorders, neuromotor disabilities, learning problems, or emotional disturbances (*53*). Many of these disorders may be seriously disabling. Early detection permits the greatest benefit from treatment. For preschool children several acceptable, reliable, and easy to use screening tests exist (*58, 59*).

The detection and remedial treatment of language disorders in preschool children is critical to prevent handicap in developing social relationships and cognitive learning skills. An estimated 1.5 million children in the United States suffer some language failure (*60*). Most preschool developmental screening procedures include language screening. It seems prudent to consider this both a needed health and an educational service.

Health professionals generally acknowledge the need for early and routine screening of development. However, concerns about its potential misuse as a diagnostic tool and as a culturally biased rating system have been voiced. Despite these concerns, developmental assessment has a rich potential when it is performed frequently during the first year of life, at no less than 6-month intervals during the second and third years, and at least

once more in the preschool period. Developmental assessments should be performed by adequately trained personnel, and be coupled with appropriate diagnostic and therapeutic management. Currently available developmental screening tools do not assess development effectively beyond 5 years of age. For older children, school performance can be used to measure many aspects of personal, social, motor, and cognitive development. Although there are no validated screening tools for behavior problems, the history-taking process often reveals them. In one study, 5 percent of children in the practices of nine pediatricians were found to have emotional, behavioral, or school problems (*61*). In one Health Maintenance Organization, 8.9 percent of all visits of children resulted in identification and management of emotional problems (*62*).

Dental. After age 3, nearly 100 percent of children will need dental services (*63*). Routine preventive dental services of proved effectiveness include once or twice yearly cleaning, evaluation for caries' risk factors, application of topical fluoride, and fluoride supplements for children not living in areas with fluoridated water (*64, 28*).

Scoliosis. Between 0.5 percent and 3 percent of American children have curvature of the spine (scoliosis) requiring medical or surgical management (*65–67*). Untreated scoliosis produces bony changes in the spine and rib cage and can impair cardiopulmonary function and compromise life expectancy (*65*). Screening children about to enter adolescence offers the greatest hope for successful intervention, because the best control of the curvature is obtained through the use of shoe adjustments, exercise or braces during the rapid growth period of adolescence (*68*).

Tuberculosis. The need for frequent, routine, tuberculin testing has diminished as the number of new cases of tuberculosis among unexposed children has declined (*69*). Current screening recommendations[8] may be revised to reduce the suggested frequency to once in infancy, once in the preschool period, and once in adolescence in populations where the prevalence of tuberculosis is low.[9]

The Organization of Screening Programs

Many approaches to organizing screening and prevention programs are used, and each screening procedure can be performed on the target population separately. For example, vision screening can be done for all fourth grade students, or immunizations could be given in the schools every year to all those who are due for them. This method is efficient and has the potential for reaching individuals missed by the health care system. But for any child to receive a complete range of screening and preventive services, many such programs would be needed. Findings of

[8]The American Academy of Pediatrics recommends initial tuberculosis screening for all children at or before 15 months of age (at the time of or before measles immunization), and with annual or biennial testing thereafter (*70*).

[9]Mortimer, E. A. Personal phone communication to S. Aronson, October 27, 1979.

disparate programs, unless integrated with other health records, would result in missed diagnoses or unnecessary duplication of service. Without careful followup, some children would go unserved because of absence from school on the date of the screening. The most cost-effective approach would probably be to deliver screening and preventive services by one system, in one setting, for each child. This setting could be a school, a comprehensive care clinic, a day care program, or a pediatrician's office. Mechanisms to prevent gaps in service would still be required.

Physical Examination

A recent review of the content and effectiveness of health supervision for children under 2 years of age has noted that physical examination after the newborn period is a low-yield procedure (*71*). Less than half of congenital malformations are discovered in the newborn period, but the majority of the remainder are detected by 6 months of age. Other health problems are usually revealed by health history and are only corroborated or defined by physical examination findings.

Immunization

The present degree of control of diphtheria, tetanus, pertussis, poliomyelitis, measles, rubella, and mumps undoubtedly is due to the success of immunization (*72, 30*). As the National Immunization Initiative has so clearly demonstrated, reduction of disease can be accomplished by a combination of technical developments, public education, and motivation of health personnel (*73–75, 31*) Vaccines against hemophilus influenzae, mycoplasma pneumonia, gonorrhea, and syphilis are being developed, but are not yet ready for use (*30*).

Health Education To Counter Risk Factors for Adult Disease

A number of risk factors, if present during childhood and youth, are well known to predispose to adult disease. Among these are misnutrition (obesity, and intake of excess salt, sugar, and fat, or inadequate fiber), inadequate exercise, cigarette smoking, and substance abuse. One study has indicated that as many as 40 percent of American school children have one or more risk factors for arteriosclerosis (*1*).

Well designed health education curricula used in a variety of settings have achieved success in improved dental hygiene, control of obesity, prevention and cessation of smoking, increased habitual use of seat restraints, and control of alcohol consumption. Most of these successful programs include basic understanding of the human body, health risks, and personal responsibility for making decisions that affect health. While effective programs should be encouraged and expanded, further research and development in this area is greatly needed (*34, 76–79*).[10]

[10]Reisinger, K. Personal communication, October 1979.

Anticipatory Guidance and Parenting Advice

Available data suggest that advice given during well-child visits can be effective (*80*). Studies that have compared the effectiveness of (a) physician advice alone, (b) use of pamphlets and other information techniques alone, and (c) combination of the two to promote the use of seatbelts and car seat restraints indicate that the physician's personal advice has the greatest positive effects. Studies reveal that to be effective, health professionals should be warm and friendly, provide adequate explanations, and meet the patients' and parents' expectations and concerns (*71*). The skillful child health professional reinforces the good ideas of the parent and provides alternative strategies which the parent might find helpful.

Lay Support Systems

In contemporary society many groups are organized around shared religious beliefs, ethnic identities, or common problems, many of them health related. These groups serve an important function in providing information about and access to available resources, making unmet needs known, and helping to solve problems shared by the group members. Less organized social supports can be found in informal personal and neighborhood networks. To some extent these groups offset the current absence of extended family supports, and health professionals need to acknowledge and work more closely with them.

Strengthening the Capacity of Parents and Children To Act on Their Own Behalf

A need for wider dissemination of preventive health care and other illness-management information to the general public does exist. Creative use of the mass entertainment and news media; and of personal health advocacy training in the workplace, in schools, and in community gathering places should be explored. Because programs aimed at development of healthy behavior patterns are more likely to succeed with young children than with adults, greater efforts should be made to foster positive self-directed health behaviors early in life. Some successful examples of such efforts include a program to develop nutritious eating behavior in preschoolers, the use of school nursing services to develop healthful behavior, and a health decisionmaking education program sponsored by the School Health Education Curriculum Project of the Center for Disease Control (*81–83*). More such efforts should be attempted and evaluated. The more parents understand about health care routines and schedules, the more they can assume responsibility for continuity of their children's health care. Provision of supportive documents and recordkeeping tools to parents make it easier for them to assume this responsibility.

Day Care

Day care can provide access to medical, dental, and mental health services for children and other family members; social and emotional support that encourages family stability, helps prevent child abuse, shares the child rearing burdens of parents, and fosters achievement among poor children (*84, 75*). For these reasons, if day care services were universally available, the health status of the Nation's children would improve.

Community Health Services

Emergency Services

Needed emergency services include effective emergency telephone services, transportation, emergency and intensive hospital facilities, and rapid communication and coordination among all levels of service. Children's emotional and medical care needs in emergency situations often differ from those required by adults. Emergency services should be planned to provide for these special needs of children.

Exercise Facilities and Programs

Resources and programs for physical activities are needed to gain the mental and physical health benefits of exercise (*1*). An improved sense of well-being, weight control, and reduced probability of heart attack are associated with exercise. Exercise habits are learned principally in the home and community during childhood. The more available and commonplace such activities for children become, the more individuals may be drawn to and persist in them throughout life.

Health Services Needed Only by Subgroups of Children

Major subgroups of children needing special services include the following:

- the urban poor
- the rural poor
- ethnic and racial minorities
- children who are abused or neglected
- children receiving care away from homes
- children and families where chronic disease affects some family member
- children with severe acute illness or injury requiring hospital-based services

Services Needed by the Urban Poor

The urban poor need better access to health services than they now have. They require including supplementary services such as culturally

oriented advocacy, outreach translators, escorts, child care, and special screening programs for disorders such as lead poisoning and parasitic infections. Many poor people have no private transportation and, especially when ill, need transportation to and from health care appointments, provided either directly or by vouchers issued by health facilities.

Whenever possible, a variety of services needed by the poor should be coordinated at one locaton convenient to the patient. The health center can make arrangements with social service agencies and a variety of health professionals to provide the commonly needed mix of services such as child health care, laboratory and pharmacy services, social services, economic support, and food and nutrition programs to reduce stresses that affect health. Although current health care facilities usually are not designed to provide such "one-stop" care, where such facilities do exist, they have produced dramatic improvements in health status (*85*).

Services Needed by the Rural Poor

Sanitation, Parasite Screening, and Toxic Agricultural Product Control

The rural poor lack basic sanitary facilities taken for granted in urban settings; this necessitates routine screening for parasitic and other infections resulting from poor sanitation. Rural children are more vulnerable than adults to any long-term effects of residual agricultural pesticides and other toxic agricultural products and should therefore be carefully protected from them.

Health Care Services

Rural families in general are medically underserved and unlikely to have access to primary health care. Inadequate transportation and poorly distributed health services are serious problems in rural areas. Health services for rural people at all socioeconomic levels need to be upgraded to a level comparable with that of urban areas. Mechanisms of payment also must be addressed, since a smaller proportion of the rural population have health insurance coverage than urban dwellers, and third-party reimbursement rates are lower for those who are covered (*86*).

Services Needed by Children of Migrant Workers

Children of migrant families need special attention in the health care delivery system. These children receive fragmented services or no care at all. In one study 48.9 percent of migrant children were found to have significant treatable illnesses (*87*). Because their parents are often unable to bring them for care unless they have severe illness, preventive health services frequently must be provided in day care or school settings, where health histories tend to be sparse or unavailable. In the absence of such data, thorough physical examination and laboratory tests take on greater importance.

Services Needed by Ethnic and Racial Minorities

Special comprehensive health service programs are needed by children from groups that are so culturally different from the rest of the Nation that conventional programs will not be effective. Examples of such groups are some native Americans, recently immigrating Indochinese, families in Appalachia, and residents of the Caribbean and Pacific territories. Assessment of the health of the subgroup will reveal special needs that can be met only by providing services in addition to those needed by all children.

Indochinese Refugees

The recent influx of Indochinese refugees into the United States demonstrates the dynamism of the population's health needs and service requirements. Before the refugees leave Asia they are examined for tuberculosis, leprosy, venereal disease, and mental defects and disorders (*8*). So far, the principal health problems of this population are tuberculosis and parasitic diseases; time and experience will probably reveal others. Although individuals with untreated, actively infectious conditions and severe mental disorders will be excluded from entry, moderate to severe personal health problems related to malnutrition, poor living conditions, dislocation, and the absence of family supports are likely to be widespread among those admitted into the United States.

Special Health Needs of Ethnic Groups

Some health problems are found exclusively or more commonly among certain ethnic and racial groups, requiring special services for these populations. Sickle-cell anemia screening is appropriate for families who are of black, Latin, or Mediterranean origin. Although the incidence of sickle-cell trait is about 8 percent among blacks, the trait does not affect longevity and is not associated with discomfort, except under unusual conditions such as flying in unpressurized aircraft (*88*). If both parents have the sickle-cell trait, the chances are 1-in-4 that a child will have sickle-cell disease. Individuals with sickle-cell disease have a markedly shortened life expectancy. A prenatal test has been developed and is now available at Rutgers University to permit diagnosis of sickle-cell disease in the fetus at 14–16 weeks of pregnancy.[11,12] Families may then choose to terminate an affected pregnancy. Anemia screening followed by sickle-cell screening of anemic children of black, Latin, or Mediterranean origin will identify children with sickle-cell disease. Early detection does not improve the outcome of treatment, but because children with the disease are prone to infections caused by streptococcus pneumonia, early detection permits prophylaxis against this complication.

[11] Specimens are sent by air from anywhere in the United States for testing at Rutgers.

[12] Ramirez, F. Personal communication, August 1980.

Tay-Sachs disease occurs in 4 out of every 10,000 births among Ashkenazi Jews. The gene is carried by 3 percent of all American Jews (*88*). Tay-Sachs screening programs have been quite successful when limited to appropriate target populations.

Services Needed by Children Who Are Abused or Neglected

Based on the rates reported for Denver and New York, an estimated 2.5 to 3 children out of 10,000 suffer from child abuse during a year's time (*89*). Although child abuse reporting has increased since the passage of new laws in many States, and although many more cases are reported than proved, many authorities contend that child abuse is greatly underreported (*90*). Some suggest that rates for "accidental" deaths and injuries include many cases of abuse (*91*). Much can be done for neglected and abused children and their families. Child abuse and neglect is a symptom, not a disease, and the causes may be poverty, social incompetence, mental illness, or a combination of these factors. Appropriate steps for the alleviation of such neglect or abuse can include finding jobs for parents, providing day care and homemaker services for respite from difficult children, and participation of parents in lay support groups.

Services Needed by Children Receiving Care Away from Home

Children in day care centers, at camp, in foster care, and in institutions have special health service needs. Some of these needs result from separation from a child's natural parents, and some from the group setting or distance from medical care facilities. Foster children need preplacement health assessments, their natural and their foster parents need counseling, and special efforts should be made to ensure continuity of care if they are relocated. Foster parents should know whether the children in their charge have been protected by appropriate routine health procedures and whether they have any special health problems. Increased risks for transmission of infectious disease result from bringing children together in groups. Those who care for such children need special training in avoiding these and other health risks.

Services Needed by Children and Families Where Chronic Disease Affects Some Family Member

Children whose parents have chronic illness also have special health needs. Alcoholism is one of the most common chronic diseases among parents, and is estimated to affect more than 28 million children in the United States. Such children experience emotional neglect, family conflict, instability, divorce, separation, and physical abuse from their parents. School problems, delinquency, and fighting are common reactions. Only some of their social and emotional needs can be addressed directly by health services, but lay support systems, as extensions of alcoholic treatment programs or other community service programs, might be of significant benefit (*92*).

Hospital-Based Services for Ill or Injured Children and Their Families

Emergency Room Services

Because children frequently suffer injuries and acute infections, they are common users of emergency rooms of local hospitals. Emergency rooms and inpatient hospital services are often noisy and busy, if not chaotic, and can be very frightening for a child. Because of the frequency with which children receive care in emergency rooms, such facilities should be equipped and staffed to meet children's needs, but frequently are not. Effective diagnostic and therapeutic decisions require a knowledge of children's special fluid needs, responses to drugs, and the influence of growth and development on illness and treatment.

Inpatient Services

Forced separation of parents and children during hospitalization is still a common practice, and one that may have long-term psychological effects (*93–95*). Parental presence during medical procedures, at mealtime and bedtime and during the night helps the child to cope with hospital experiences, and is especially necessary for infants and young children. When adults are hospitalized, their normal way of living and activity is interrupted, but they can resume their usual activities when their health is restored. Growing children, however, do not interrupt their developmental processes for illness (*96*). Thus the impact of a hospital experience on them is often greater than similar experiences are for adults. Special services are needed in hospitals to mitigate the adverse effects of hospitalization on children. In addition, because medical care needs for pediatric hospitalizations differ from those for adults, considerable effort has been expended to develop model criteria for hospital care of pediatric patients (*97*). These standards need to be implemented.

Finally, hospital-based services for children should include family counseling when a child dies. The effects on the family can be devastating—especially when it produces parental guilt. These effects can be mitigated by sensitive support.

Additional Health Care Service Needs

Telephone Health Services

Child health providers spend at least 10 percent of their time giving advice to parents by telephone (*98*). Studies of doctor, nurse practitioner, and pediatric health assistant effectiveness in responding to telephone calls have shown that a variety of trained health personnel can share this responsibility if they have adequate backup (*99, 100*). Coverage arrangements among health providers often result in telephone contact between health professionals and patients who do not know each other. Although telephone access (usually free of charge) is an assumed right of the paying patient, this service is denied the poor allegedly because of concern about

discontinuity of service or the adequacy of care provided. Yet a number of programs have shown that telephone coverage can serve the needs of the poor (*98*).

Continuous Round-the-Clock Access to Health Facilities

A recent study showed that use of outreach workers decreased the proportion of families who reported that they or someone in their family postponed medical care from 23 to 10 percent (*98*). Outreach workers increased the use of early and periodic screening, diagnosis, and treatment services, and increased the keeping of well-child clinic appointments from 55 to 99 percent. Outreach can be done via the mass media, mail, or telephone by trained workers sensitive to the background of the families served.

Ample evidence exists that the need for outreach is not limited to the poor. Immunization levels among middle-class school children have been shown to increase with outreach efforts (*101, 102*). Merely the use of mailed appointment reminder cards was shown to increase the rate at which appointments were kept from 78 to 88 percent among military dependents (*103*). Outreach efforts in a variety of locations and in conjunction with other activities popular with the target population are likely to be the most effective. For example, immunization levels have been increased by coordination with Head Start day care programs and with church congregations.[15]

Monitoring the Quality of Health Care

Monitoring the quality of health services ensures a minimum standard of services and reduces incompetent or fraudulent practices. For example, immunization, one of the most effective preventive services, is not being provided to between 20 and 40 percent of children receiving private well-child care (*1*). This oversight is due to absence of adequate tracking and followup systems for patients and to the absence of mechanisms for monitoring the quality of office health care. Surveys of records of private pediatric practices, neighborhood health centers, hospital outpatient departments, prepaid group practices, and public clinics indicate that much less service was recorded in children's health records than the providers claimed they delivered (*104*). Only 25 percent of the records of solo practitioners who claimed that they perform anemia screening, showed that an anemia test had been done; only 45 percent of the records noted vision screening. The best performance was demonstrated in the prepaid group practices, where 85 percent of the records showed evidence that anemia screening had been done and 40 percent showed evidence of vision screening.

Techniques are available to assess the quality of medical care based on health outcomes and standards for specific conditions or health needs. They could be used to audit pediatric practice (*105, 106*).

[15]Gens, R. Personal communication: Pennsylvania Department of Health, September 1979.

Training of Health Professionals in Health Care Quality Standards

The Task Force on Pediatric Education has outlined a course of training for medical students and residents—significantly different from current training programs—which includes child advocacy; identification and management of behavioral disorders; accident prevention, and the importance of health maintenance, lifestyle, preventive care, and anticipatory guidance, in addition to the more traditional pediatric curriculum. The Task Force also recommended training in the biosocial and developmental aspects of pediatrics, adolescent medicine, chronic illness, clinical pharmacology, community pediatrics, health maintenance, medical ethics, nutrition, and musculoskeletal and skin disorders (*107*). Because the costs of many of these services are not reimbursed under third-party payment plans, and no way presently exists to finance such training, little incentive to teach prevention and primary care can be found.

Increasing the Effectiveness of Current Health Manpower Resources

Estimates are that only 63 percent of children could receive adequate care from fellows of the American Academy of Pediatrics, even if all of them worked exclusively in the provision of well-child care. Because large segments of the population are underserved and could not be served by the present supply of pediatricians, partnerships with other health practitioners may be necessary to ensure delivery of high-quality preventive health care to all children (*108*). Nurse practitioners and physicians' assistants supervised by pediatricians have been shown to be as effective in the provision of well-child care as pediatricians (*109*).

An increasing trend toward pediatric group practice and an increasing interest among pediatricians in salaried positions have developed (*110*). Pediatricians and internists work comfortably side by side in prepaid group practice, providing family-oriented health care. However, the roles of nurse practitioners, physicians' assistants, pediatricians, and family practitioners should be clarified to improve effective delivery of child health care.

Recommended Regulatory Provisions

Many child health needs can best be met by changes in the environment. Many of these changes require Government action, although some changes could be brought about by individual and community actions. The following measures address the most significant health risks to children.

(1) Establish and enforce safety regulations for sites and sources of frequent injuries—required protection of children as passengers in motor vehicles, standards for playground equipment, playground surfaces and swimming pools, bicycles and biking equipment, and sports equipment.
(2) Modify pedestrian, bicycle, and motor vehicle thoroughfares for increased safety.

(3) Establish and enforce building codes that require handrails on both sides of stairs and at least on the right-hand side descending, lighting of the entire stairway, and installation of smoke detectors.
(4) Enforce regulations for childproof packaging of medications and require such packaging for all hazardous household products.
(5) Require installation of thermal regulators on all new water heaters for home and child care facilities so that subscalding temperatures are maintained.
(6) Enforce environmental controls and provide adequate resources to reduce health risks from air, water, and noise pollution.
(7) Ban smoking in all public buildings.
(8) Provide more accessible handwashing facilities in public places including schools, day care centers, and recreational areas.
(9) Restrict TV advertising of junk foods on children's programs and the availability of junk foods in schools.
(10) Implement standards for food programs in out-of-home settings (day care, schools, and camps).
(11) Require highly visible warnings on alcoholic beverages, tobacco products, and over-the-counter drugs about their risks for children and pregnant women.

Controversial Health Services

Renal Disease Screening

Urinalysis is in common use to screen for evidence of blood, protein, glucose, or bacteria in the urine. Hematuria, proteinuria, and glycosuria are more often related to renal pathology than bacteruria, but the correlation between frequently found positive findings on these tests in school children and the very low annual rate of death from chronic renal disease or of progressive disease on prospective studies suggests that these screening findings may be of limited significance (*111–113*). The prevalence of urinary tract infection is 3 percent for preterm infants, 1 percent for term infants. For girls, the prevalence does not exceed 1.5 percent during school age; for boys it is 0.03 percent (*112*). Based on the natural history of urinary tract disease, screening for bacteruria seems more useful in infants and toddlers than in older children. Testing of individuals who have never been previously screened might be justifiable, but the cost of such screening relative to benefits to be derived is unknown. The cumulative risk of a girl acquiring asymptomatic bacteruria by the 12th grade is 5–6 percent, but this condition is thought to be benign except when complicated by symptomatic infections (*113*). Therefore, early detection of asymptomatic bacteruria seems to be of limited value.

Perinatal Home Visitor Service

A lay support system of home visitors has been proposed to help ensure that the basic health needs of every child are met, especially during the first 4 years of life (*114*). The health visitor would be a successful parent,

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chosen by a neighborhood to be a bridge between the families of the neighborhood and the health care system. Such a service exists now in several European countries where concern for invasion of parental rights has not been a problem. The health visitor would focus on helping to fulfill health needs of all family members, advise on preparation for child care and handling of minor problems, provide basic consumer health education, and be an advocate for the family with the health care system. As a minimum, the health visitor would come to the home on a prearranged basis regularly in the first months of life and twice yearly thereafter to school age. Such a service would require one half-time health visitor for 50–60 children. Many agree that such a system is workable and desirable.

Care of Ill Children of Working Parents

With the increasing number of mothers of young children in the labor force, there is a great demand for quality day care services. The majority of day care programs exclude children with all but the most minor illnesses. Because of the high incidence of acute infectious illness in early childhood, the management of ill children will always pose a difficulty for working parents, day care programs, and schools. In one approach to this problem, caregivers go to the homes of children who are too ill to attend their usual day care programs and whose parents are unable to stay home with them (*115*). Even this arrangement, however, does not provide a familiar caregiver at a time when a child really needs one. Day care program policies for care of ill children, or employer and school policies for leave for the parents of ill children could be more lenient. Denmark has chosen the latter course and gives both parents special leave benefits when their children are ill.

Podiatric Screening

Because many people suffer foot disorders without complaint during childhood, only to develop disabling problems as adults, podiatric screening of children in schools has been suggested by members of the American Public Health Association. The extent to which physicians fail to detect foot disease in children for appropriate treatment is not known, and the extent to which this results in disability or discomfort is also unknown. This gap in knowledge could be addressed through podiatric screening of sample populations to establish the extent of need for foot care. If it proved needed, training in podiatric screening could be included in the training of primary health care personnel.

Conclusions

In 1977, Kenneth Keniston listed the following major changes in the current health care delivery system that are necessary to meet child health needs:

- Recognition of the nonmedical influences on health in the planning and delivery of health services

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- The removal of racial, ethnic, and economic barriers that prevent some children from receiving health care
- The organization of health care delivery systems for children that emphasize preventive care, primary care, and more humane care
- Requirements for health service agencies to deliver high-quality services to every child and to be publicly accountable
- Increasing and strengthening the capacity of parents and children to act on their own behalf (*116*)

Now is the time for action for the health of children. Health services appropriate for the whole population and additional services for subgroups with identified special needs are only part of what is needed. To reduce risks to child health requires more than conventional "medical care." Supportive social services to families, strengthening of communities through better housing and schools, and control of environmental risks are also required. Although health care services are not a complete answer to child health problems, much can be done to improve child health through better delivery of child health services.

APPENDIX: KNOWN RISKS TO CHILD HEALTH

1. For children under 1 year of age (infants)
   a. Immaturity—(see other paper on maternal and pregnancy services)
   b Birth associated complications
   c. Congenital anomalies
   d. Sudden infant death
   e. Accidental deaths and injuries
      (1) Ingestion of food or object
      (2) Motor vehicle
      (3) Mechanical suffocation
      (4) Fires, burns
   f. Infectious disease
   g. Undernutrition and overnutrition
   h. Failure of attachment, "bonding"
      (1) Process of birthing
      (2) Being born unwanted
      (3) Inadequate parenting skills
   i. Affect of childbearing, parenting on marital stability and family mental health status
   j. Socioeconomic, educational, and housing inadequacies
2. For children ages 1–4 (toddlers and preschoolers)
   a. Accidental deaths and injuries
      (1) Motor vehicle
      (2) Fires, burns
      (3) Drowning
      (4) Ingestion of food or object
      (5) Falls
      (6) Product related injuries—USCPSC
   b. Congenital anomalies
   c. Cancer

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d. Infectious conditions
   (1) Upper respiratory conditions
   (2) Systemic infectious diseases
   (3) Parasitic diseases
   (4) Influenza
   (5) Digestive system conditions
e. Quiet conditions
   (1) Nutrition
   (2) Dental
   (3) Sensory defects
   (4) Lead poisoning
   (5) Child abuse and neglect
   (6) Behavioral, emotional problems
   (7) Developmental delay
f. System diseases
   (1) Respiratory diseases, asthma, and allergy
   (2) Metabolic diseases--diabetes
   (3) Digestive system disorders
   (4) Urinary tract diseases
   (5) Convulsive disorders
   (6) Skeletal disorders
   (7) Skin disorders
g. Pediatric antecedents of adult disease pertinent to this age group
   (1) Hypertension fostering conditions (e.g., excessive salt intake and other deleterious nutritional habits)
   (2) Elevated serum cholesterol
   (3) Obesity
h. Socioeconomic, educational, and housing inadequacies

3. For children ages 5–14 (primary, mid- to late-latency children)
   a. Accidental deaths and injuries
      (1) Motor vehicle
      (2) Drowning
      (3) Fires, burns
      (4) Product related injuries—USCPSC
   b. Cancer
   c. Congenital anomalies
   d. Infectious conditions
      (1) Upper respiratory conditions
      (2) Influenza
      (3) Systemic infectious diseases
      (4) Parasitic diseases
      (5) Digestive system conditions
   e. Quiet conditions
      (1) Nutrition
      (2) Dental
      (3) Sensory defects
      (4) Child abuse and neglect
      (5) Behavioral and emotional problems
      (6) Learning disorders
   f. System diseases—continuum from early childhood

g. Pediatric antecedents of adult disease
   (1) Hypertension-fostering conditions
   (2) Elevated serum cholesterol
   (3) Obesity
   (4) Cigarette smoking
   (5) Poor physical fitness
h. Socioeconomic, educational, and housing inadequacies

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REFERENCES

(1) Office of the Assistant Secretary for Health and Surgeon General. *Healthy People—The Surgeon General's Report on Health Promotion and Disease Prevention Background Papers.* Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79-55071A, 1979.
(2) "Something for All and More for Those in Greater Need." *WHO Chronicle* 31: 150, 1977.
(3) Lowrance, W. W. *Of Acceptable Risk.* Los Altos, Calif.: William Kaufmann, Inc., 1976.
(4) Elinson, J. "Methods of Sociomedical Research." In *Handbook of Medical Sociology,* 2nd ed. E. H. Freeman, *et al.,* eds. Englewood Cliffs, N.J.: Prentice Hall, 1972.
(5) Starfield, B. "Measurement of Outcome: A Proposed Scheme." *Milbank Memorial Fund Quarterly.* Health and Society, Winter: 39, 1974.
(6) National Center for Health Statistics. *Health United States, 1978.* U.S. Department of Health, Education, and Welfare, DHEW Pub. No. (PHS) 78-1232.
(7) Yanochuk-Owen, A. and M. White. "Nutritional Surveillance in Arizona: Selected Anthropomorphic and Laboratory Observations Among Mexican-American Children." *American Journal of Public Health* 67: 151, February 1977.
(8) Center for Disease Control. "Health Status of Indochinese Refugees." *Morbidity and Mortality Weekly Report* 28: 385, U.S. Department of Health, Education, and Welfare, August 24, 1979a.
(9) Ross Laboratories. *Children are Different.* Columbus, Oh., 1970.
(10) National Center for Health Statistics. *Health - United States 1978.* U.S. Department of Health, Education, and Welfare. Hyattsville, Md., 1978.
(11) National Safety Council. "Accident Facts." Chicago, Ill., 1978.
(12) Noyes, A. and L. Kolb. *Modern Clinical Psychiatry,* p. 24. Philadelphia, Pa.: W. B. Saunders, 1963.
(13) Bloom, B. S. *Stability and Change in Human Characteristics,* p. 204. Philadelphia, Pa.: John Wiley & Sons, 1964.
(14) Natapolt, J. "Children's Views of Health: A Developmental Study." *American Journal of Public Health* 68: 995, 1978.
(15) Zambrana, R., M. Hurst, and R. Hite. "The Working Mother in Contemporary Perspective: A Review of the Literature." *Pediatrics* 64: 862, December 1979.
(16) The Urban Institute. *The Subtle Revolution—Women at Work.* R. Smith, ed., 1979.
(17) Haggerty, R. *Child Health and the Community,* p. 2. R. Haggerty, K. Roghmann, and I. Pless, eds., New York, N.Y.: John Wiley & Sons, 1975.
(18) Roghmann, K., P. Hecht, and R. Haggerty. "Coping with Stress." In *Child Health and the Community,* p. 54. R. Haggerty, K. Roghmann, and I. Pless, eds., New York, N.Y.: John Wiley & Sons, 1975.
(19) Pless, I. "Chronic Illness." In *Child Health and the Community,* p. 78ff. R. Haggerty, K. Roghmann, and I. Pless, eds., New York, N.Y.: John Wiley & Sons, 1975.
(20) Starfield, B. "Child Health." Address prepared for American Convocation in honor of the International Year of the Child, Pittsburgh, Pa., September 10, 1979.
(21) National Institute on Drug Abuse. "Growing Up in America." U.S. Department of Health, Education, and Welfare, Rockville, Md., 1973.

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(22) U.S. Department of Health, Education, and Welfare, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration. "Report of the HEW Task Force on Implementation of The Report to the President from the President's Commission on Mental Health." Rockville, Md., 1979.
(23) Joint Commission on Mental Health of Children. *Crisis in Child Mental Health: Challenge for the 1970's.* New York, N.Y.: Harper & Row, 1969.
(24) Starr, G., R. Norris, K. D. Tatil, and P. R. Young. "Patient Expectation: What is Comprehensive Health Care?" *Journal of Family Practice* 8: 161, 1979.
(25) Dodge, W., E. West, J. Holloway, E. Vridgforth, and L. Travis. "Patterns of Maternal Desires for Child Health Care." *American Journal of Public Health* 60: 1421, August 1970.
(26) General Mills, Inc. *American Family Report 1978–79, Family Health in an Era of Stress.* Minneapolis, Minn. 1979.
(27) Hansen, J. L., C. Freesemann, A. D. Moodie, and D. E. Evans. "What Does Nutritional Growth Retardation Imply?" *Pediatrics* 47: 299, January 1971.
(28) Walsh, D. C. "Fluoridation, Slow Diffusion of a Proved Preventive Measure." *New England Journal of Medicine* 296: 1118, May 1977.
(29) Margolis, F., ed. "The Physician's Responsibility in Dental Caries Prevention." Wayne State University, Audiocassette, 1979.
(30) Mortimer, E. "Immunization Against Infectious Disease." *Science* 200: 902, May 1978.
(31) Hinman, A., D. Brandling-Bennett, P. Bieburg. "The Opportunity and Obligation to Eliminate Measles from the United States." *Journal of the American Medical Association* 242: 1157, September 14, 1979.
(32) Baker, S. and P. Dietz. "Injury Prevention." In *Healthy People—The Surgeon General's Report on Health Promotion and Disease Prevention Background Papers,* p. 53. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79-55071A, 1979.
(33) Andrews, R. "Longitudinal Study of the Primary Grades Curriculum Project." American Lung Association, 1979.
(34) Simonds, S. K. "Emerging Challenges in Health Education." In *Health Education Pan American Health Organization WHO,* Washington, D.C., 1978.
(35) U.S. Department of Health, Education, and Welfare, National Institute of Child Health and Human Development Report. "Sudden Infant Death Syndrome." National Institutes of Health, December 1978.
(36) Korobkin, R. and C. Guilleminault. "Neurologic Abnormalities in Near Miss for Sudden Infant Death Syndrome Infants." *Pediatrics* 64: 369, September 1979.
(37) American Academy of Pediatrics, Task Force on Prolonged Apnea. *Pediatrics 61: 651-652, 1978.*
(38) Valdes-Dapena, M. "Sudden Infant Death Syndrome: A Review of the Medical Literature, 1974–1979." *Pediatrics* 66: 597–614, 1980.
(39) North, A. F. "Screening in Child Health Care: Where are We Now and Where are We Going." *Pediatrics* 54: 631, November 1974.
(40) Foman, S. "Nutritional Disorders of Children." U.S. Department of Health, Education, and Welfare. Rockville, Md., 1977.
(41) American Academy of Pediatrics. *Standards of Child Health Care,* 3rd ed. Evanston, Ill., 1977
(42) Waterlow, J. C., R. Buzina, W. Keller, J. M. Lane, M. Z. Nichaman, and J. M. Tanner. "The Presentation and Use of Height and Weight Data for Comparing the Nutritional Status of Groups of Children Under the Age of 10 Years" *Bulletin of the World Health Organization* 55: 489, 1977.
(43) Owen, G., K. Kram, P. Garry, J. Lowe, and A. H. Lubin. "A study of Nutritional Status of Preschool Children in the United States 1968–1970." *Pediatrics* 53: 597, April 1974.
(44) Center for Disease Control. "Clinical, Anthropometry and Dental," Chapter III. In *Ten State Nutrition Survey 1968–1970.* Atlanta, Ga., 1972.
(45) Zee, P., T. Walters, and C. Mitchell. "Nutrition and Poverty in Preschool Children." *Journal of the American Medical Association* 213: 739, August 3, 1970.
(46) Cretens, M. and M. Mattson. "Hypertension Screening Program Follow-Up of Previously Identified Children with Elevated Blood Pressure." *Journal of Family Practice* 6: 891, 1978.
(47) Loggie, J. M. H. "Hypertension in Childhood." *Drug Therapy* 8: 49, February 1978.
(48) American Academy of Pediatrics. "Recommendations of the Task Force on Blood Pressure Control in Children." *Pediatrics Supplement* 59: 797, 1977.
(49) Beller, E. K. and D. A. Howell. "A study of Anemia and Mental Functioning in Underprivileged Children." Proceedings of the International Congress of Pediatrics, Section on Nutrition and Gastroenterology. Vienna, Austria, August 29–September 4, 1971.
(50) Srikantia, S. G., C. Bhaskaram, J. Prasad, and K. Krishnamachari. "Anemia and Immune Response," p. 1307. *Lancet,* June 19, 1976.

(51) Pollitt, E. and R. Leibel. "Iron Deficiency and Behavior." *Journal of Pediatrics* 88: 372, March 1976.
(52) Hick, J. "Preschool Screening: Right or Ritual?" *Minnesota Medicine*, Vol: 373, May 1979.
(53) Frankenburg, W. and A. F. North. "A Guide to Screening for the EPSDT Program." Rockville, Md.: U.S. Department of Health, Education, and Welfare, 1974.
(54) Health Care Financing Administration. "EPSDT. The Possible Dream." Washington, D.C.: U.S. Government Printing Office, 1977.
(55) Freeman, B. and C. Parkins. "The Prevalence of Middle Ear Disease Among Learning Impaired Children." *Clinical Pediatrics* 18: 205, April 1979.
(56) McCandless, G. and G. Thomas. "Impedance Audiometry as a Screening Procedure for Middle Ear Disease." *Transactions of the American Academy of Ophthalmology and Otolaryngology* 78: 98, March–April 1974.
(57) Frankenburg, W. K. "Selection of Diseases and Tests in Pediatric Screening." *Pediatrics* 54: 612, November 1974.
(58) Frankenburg, W. K., A. D. Goldstein, and B. W. Camp. "The Revised Denver Development Screening Test: Its Accuracy as a Screening Instrument." *Journal of Pediatrics* 54: 612, 1971.
(59) Thorpe, H. and E. Werner. "Developmental Screening of Pre-School Children: A Critical Review of Inventories Used In Health and Education Programs." *Pediatrics* 53: 362, March 1974.
(60) Schwartz, A. and M. Murphy. "Cues for Screening Language Disorders in Preschool Children." *Pediatrics* 55: 717, May 1975.
(61) Golderg, I., D. Regier, T. McInerny, I. Plesa, and K. Roghmann. "The Role of the Pediatrician in the Delivery of Mental Health Services to Children." *Pediatrics* 63: 898, June 1979.
(62) Coleman, J., D. Patrick, and S. Baker. "The Mental Health of Children in an HMO Program." *Journal of Pediatrics* 91: 150, July 1977.
(63) Parker, W., G. Barnes, and J. Cheatham. "Estimated Cost of Complete Dental Care for Army Dependents." *Military Medicine*, p. 707, October 1978.
(64) Sussman, M. "Competence and Options: A Theoretical Essay, Implications for Nutritional Research." In *Nutrition, Development and Social Behavior*. Washington, D.C.: U.S. Government Printing Office, DHEW Publication No. (NIH) 73-242, 1973.
(65) Dunn, B., M. Hakala, and M. McGee. "Scoliosis Screening." *Pediatrics* 61: 794, May 1978.
(66) Abbott, E. V. "Screening for Scoliosis: A Worthwhile Preventive Measure." *Canadian Journal of Public Health* 68: 22, February 1977.
(67) Drennan, J. C., J. B. Campbell, and H. Ridge. "Denver: A Metropolitan Public School Scoliosis Survey." *Pediatrics* 60: 193, August 1977.
(68) Kane, W. J., J. Brown, R. Hensinger, and R. Keller. "Scoliosis and School Screening for Spinal Deformity." *American Family Physician* 17: 123 May 1978.
(69) Edwards, P. "Tuberculin Testing of Children." *Pediatrics* 54: 628, 1974.
(70) American Academy of Pediatrics, Committee on Infectious Diseases. *Report of the Committee on Infectious Diseases*, 18th ed. Evanston, Ill.: American Academy of Pediatrics, 1977.
(71) Casey, P., M. Sharp, and F. Loda. "Child-Health Supervision for Children Under 2 Years of Age: A Review of Its Content and Effectiveness." *Journal of Pediatrics* 95: 1, July 1979.
(72) Harris, C. S., Sir. "Triumphs and Defeats in the Control of Infection by Immunization." *Midwives Chronicle and Nursing Notes* 92: 68, March 1979.
(73) Rand, K. and P. Reuman. "Measles: Ready for Eradication?" *Annals of Internal Medicine* 90: 978, June 1979.
(74) Richmond, J. "Measles Elimination - Why Not Now?" *Journal of the American Medical Association* 242: 1175, September 14, 1979.
(75) Comptroller General. "Report to the Congress: Early Childhood and Family Development Programs Improve the Quality of Life for Low-Income Families." U.S. General Accounting Office, February 6, 1979.
(76) Zamott, R. C. Lancer, K. Regan, and F. Tolson. "Healthy, That's Me—Evaluating Use of Health Education Materials for Preschool Children." *Child Welfare* LIV: 41, January 1975.
(77) Gritl, E. "Smoking: The Prevention of Onset." *Research on Smoking Behavior, National Institute Drug Abuse Research Monograph Series* 17: 290–307, December 1977.
(78) Milo, N. "A framework for Prevention: Changing Health-Damaging to Health-Generating Life Patterns." *Journal of the American Medical Association* 66: 435, 1976.
(79) Lewis, C. and M. A. Lewis. "The Impact of Television Commercials on Health-Related Beliefs and Behaviors of Children." *Pediatrics* 53: 431, March 1974.
(80) Gutelius, M. D., A. D. Kirsch, S. MacDonald, M. R. Brooks, P. McErlean, and C. Newcomb. "Controlled Study of Child Health Supervision: Behavioral Results." *Pediatrics* 60: 292, 1977.

(81) Smiciklas-Wright, H., and A. D'Angelli. "Primary Prevention for Overweight: Preschool Eating Patterns (PEP) Program." *Journal of the American Dietetic Association* 72: 626, June 1978.
(82) Lewis, C. E., M. A. Lewis, A. Lorimer, and B. Palmer. "Child Initiated Care: The Use of School Nursing Services by Children in an Adult Free System." *Pediatrics* 60: 499, 1977.
(83) Bureau of Health Education. "The School Health Education Curriculum Project." *Focal Points*, February 1976.
(84) Rubenstein, J. and C. Howe. "Caregiving and Infant Behavior in Day Care and in Homes." *Developmental Psychiatry* 15: 1, 1979.
(85) Davis, K. and C. Schoen. "Health and the War on Poverty: A Ten Year Appraisal." Washington, D.C.: The Brookings Institution, 1978.
(86) U.S Department of Health, Education, and Welfare, Bureau of Community Health Services. "Bureau of Community Health Services Programs." Rockville, Md.: DHEW Publication Number (HSA) 78-5002, 1978.
(87) Smith, G. and C. DeAngelis. "The Health Status of a Subgroup of Migrant American Children." *Clinical Pediatrics* 17: 900, December 1978.
(88) Vaughan, V., R. J. McKay, R. Behrman, and W. E. Nelson, eds. *Nelson Textbook of Pediatrics*, 11th ed., pp. 339, 1386. Philadelphia, Pa.: W. B. Saunders Co., 1979.
(89) Kempe, C. H. and R. E. Helfer. *Helping the Battered Child and His Family*. Philadelphia, Pa.: J. B. Lippincott, 1972.
(90) James, J., W. Womack, and F. Strauss. "Physician Reporting of Sexual Abuse of Children." *Journal of the American Medical Association* 240: 1145, September 8, 1978.
(91) Silver, G. *Child Health in America*. Germantown, Md.: Aspen Systems Corp., 1978.
(92) Booz, Allen and Hamilton, Inc. "An Assessment of the Needs of and Resources for Children of Alcoholic Parents." Rockville, Md.: National Institute of Alcohol Abuse and Alcoholism, November 30, 1974.
(93) Hardgrove, C. B. and R. Kermoian. "Parent Inclusive Pediatric Units: A Survey of Policies and Practices." *American Journal of Public Health*, September 1978.
(94) Rutter, M. "Separation Experiences: A New Look at an Old Topic." *Journal of Pediatrics* 95: 147, July 1979.
(95) Korsch, B. "Issues in Humanizing Care for Children." *American Journal of Public Health* 68: 831, September 1978.
(96) Plank, E. "Working with Children in Hospitals," 2nd ed. The Press of Case Western Reserve University, 1971.
(97) American Medical Association. *Sample Criteria for Short-Stay Hospital Review*. Chicago, Ill.: American Medical Association, 1976.
(98) Schorr, L., W. Lazarus, and J. Weitz. *Doctors and Dollars Are Not Enough*. Washington, D.C.: Children's Defense Fund, Washington Research Project, Inc., 1976.
(99) Goodman, H., and E. Perrin. "Evening Telephone Call Management by Nurse Practitioners and Physicians" *Nursing Research* 27: 233, July/August 1978.
(100) Katz, H., J. Pozen, and A. Mushlin. "Quality Assessment of a Telephone Care System Utilizing Non-physician Personnel." *American Journal of Public Health* 68: 31, 1978.
(101) Vernon, T., J. Conner, B. Shaw, J. Lampe, and M. Doster. "An Evaluation of Three Techniques for Improving Immunization Levels in Elementary Schools." *American Journal of Public Health* 66: 457, May 1976.
(102) Billstein, S. "School-based Immunization Clinics." *Western Journal of Medicine* 126: 73, January, 1977.
(103) Morrison, J., T. Percer, and F. Stone. "Improved Appointment Keeping with Mailed Reminders in a Well Baby Clinic." *Military Medicine* 141: 703, October 1976.
(104) Bernick, K. "Issues in Pediatric Screening." In *Children's Medical Care Needs and Treatment, Harvard Child Health Project, Volume II*, Ballinger, 1977.
(105) Donabedian, A. "Promoting Quality Through Evaluating the Process of Patient Care." *Medical Care* VI: 1-1, May–June 1968.
(106) Brook R., A. Davies-Avery, S. Greenfield, L. J. Harris, T. Lelah, N. Solomon, and J. Ware. "Assessing the Quality of Medical Care Using Outcome Measures: An Overview of the Method." *Medical Care* 15: September 1977.
(107) American Academy of Pediatrics, The Task Force on Pediatric Education. *The Future of Pediatric Education*. Evanston, Ill., 1978.
(108) Hoekelman, R. "Primary Care: We Need All the Help We Can Get!" *Pediatrics* 53: 315, March 1977.
(109) Foye, H., R. Chamberlain, and E. Charney. "Content and Emphasis of Well Child Visits." *American Journal of Diseases of Children* 13: 794, July 1977.

(*110*) American Academy of Pediatrics, Committee on Expanding Pediatric Careers. "Career in Pediatrics." *Pediatrics* 64: 259, August 1979b.

(*111*) American Academy of Pediatrics, Section on Urology. "Screening School Children for Urologic Disease." *Pediatrics* 60: 239, August 1977f.

(*112*) Dodge, W., E. West, E. Smith, and H. Bunee. "Proteinuria and Hematuria in School Children: Epidemiology and Natural History." *Journal of Pediatrics* 88: 327, February 1966.

(*113*) Dodge, W. "Cost Effectiveness of Renal Disease Screening." *American Journal of Diseases of Children* 131: 1274, November 1977.

(*114*) Kempe, H. "Approaches to Preventing Child Abuse." *American Journal of Diseases of Children* 130: 941, 1976.

(*115*) Chang, A., G. Kelso, M. Harris, and A. Jordon. "Sick Care of Children Enrolled in Day Care: Management by Parents and by Trained Home Workers." Unpublished manuscript, May 1978.

(*116*) Keniston, Kenneth. *All Our Children.* New York, N.Y.: Carnegie Corp., 1977.

BIBLIOGRAPHY

Alpert, J., L. Robertson, J. Kosa, M. Haegarty, and R. Haggerty. "Delivery of Health Care for Children: Report of an Experiment." *Pediatrics* 57: 917, June 1976.

American Academy of Pediatrics, Committee on Fetus and Newborn. *Standards and Recommendations for Hospital Care of Newborn Infants*, 6th ed. Evanston, Ill., 1977.

American Academy of Pediatrics, Ad Hoc Committee of the Legislative Issues Committee. *Value of Preventive Health Care.* Evanston, Ill., 1977.

American Academy of Pediatrics, Ad Hoc Committee for Maternal and Child Health Project. *Report Maternal and Child Health Program (Title V).* Evanston, Ill., 1977.

American Academy of Pediatrics, Committee on Nutrition: *Pediatric Nutrition Handbook.* Evanston, Ill., 1979.

American Association of Psychiatric Services for Children, Inc. "Developmental Review in the Early and Periodic Screening, Diagnosis and Treatment Program." For U.S. Health Care Financing Administration, April 1977.

Aronson, S. and L. Aiken. "Compliance of Child Care Programs with Health and Safety Standards: Impact of Program Evaluation and Advocate Training." *Pediatrics* 65: February, 1980.

Aronson, S. and P. Pizzo. "Concept Paper on Health and Safety Issues in Day Care." Part of HEW appropriateness Study of the Federal Interagency Day Care Requirements, U.S. Department of Health, Education, and Welfare, Office of the Assistant Secretary for Planning and Evaluation, 1976.

Baker, S. "Motor Vehicle Occupant Deaths in Young Children." *Pediatrics* 64: 860, December 1979.

Brooks, D. "Johnny Passed the School Hearing Test, But." *Hearing Instruments*, 1974.

Butler, J. "Financing Children's Health Care," Chapter 6. In *Developing a Better Health Care System for Children.* Report of the Harvard Child Health Project Task Force, Cambridge, Mass.: Ballinger, 1977.

Center for Disease Control. "Congenital Birth Defects." *Morbidity and Mortality Weekly Report* HEW 28: 494, October 19, 1979.

Chamberlain, R. "Can We Identify a Group of Children at Age 2 Who are at High Risk for the Development of Behavior or Emotional Problems in Kindergarten and First Grade?" *Pediatrics* 59: 971, June 1977.

Children's Defense Fund. *EPSDT Does It Spell Health Care for Poor Children?* Wendy Lazarus, Staff Director. Washington, D.C.: Washington Research Project, Inc., June 1977.

Christopherson, E. "Factors Influencing the Use of Restraints." Washington, D.C.: Presented at the National Conference on Child Passenger Protection, December 19, 1979.

Cohen, W. "The Next Steps in Improving Health and Medical Care for Mothers and Children." *American Journal of Diseases of Children* 132: 65, January 1978.

Cornely, P. *Assessment of Medical Care for Children.* Washington, D.C.: Institute of Medicine, National Academy of Sciences, 1974.

Dallman, P. "New Approaches to Screening for Iron Deficiency." *Journal of Pediatrics* 90: 678, April 1977.

Dussault, J. H., J. Morissette, J. Letarte, H. Guyda, and C. Laberge. "Modification of a Screening Program for Neonatal Hypothyroidism." *Journal of Pediatrics* 92: 274, February 1978.

Eisenberg, L. "Controversial Issues in Health Care for Children." In *Children's Medical Care Needs and Treatment.* Cambridge, Mass.: Bellinger, 1977.

Espenshade, T. "The Cost of Children in Urban United States." Berkeley, Calif.: University of California, 1973, reprinted 1976.

Full, C., P. E. Kerber, P. Boender, and N. Schneberger. "Oral Health Maintenance of the Institutionalized and Handicapped Child." *Journal of the American Dental Association* 94: 111, January 1977.

Gray, J., C. Cutler, J. Dean, and C. H. Kempe. "Prediction and Prevention of Child Abuse." *Seminars in Perinatology* 3: 85, 1979.

Grover, R., D. Wethers, S. Shahidi, M. Grossi, D. Goldberg, and B. Davidow. "Evaluation of the Expanded Newborn Screening Program in New York City." *Pediatrics* 61: 740, May 1978.

Gutelius, M. D., A. D. Kirsch, S. MacDonald, M. R. Brooks, P. McErlean, and C. Newcomb. "Promising Results From a Cognitive Stimulation Program in Infancy." *Clinical Pediatrics* 11: 585, 1972.

Toward a Primary Medical Care System Responsive to Children's Needs. Report of the Harvard Child Health Project Task Force Vol. I. Cambridge, Mass.: Ballinger, 1977.

Hersh, S. P. "Sweden's Approach to Health Screening for Preschool Children." *American Journal of Orthopsychiatry* 48: 33, January 1978.

Hobel, C., M. Hyvarinen, D. Okada, and W. Oh. "Prenatal and Intrapartum High-risk Screening. I. Prediction of the High-risk Neonate." *American Journal of Obstetrics and Gynecology* 117: 1, September 1973.

Holteman, N. "Newborn Screening for Inborn Errors of Metabolism." *Pediatric Clinics of North America* 25: 411, August 1978.

Howell, M. *Healing at Home.* Boston, Mass.: Beacon Press, 1978.

Interprofessional Task Force on Health Care of Women and Children. "The Development of Family-Centered Maternity/Newborn Care in Hospitals." Chicago, Ill.: American College of Obstetricians and Gynecologists, June 1978.

Kahn, L. "The Influence of Funding on the Future of Pediatric Nurse Practitioner Programs." *Pediatrics* 64: 106, July 1979.

Klaus, M. and J. Kennell. *Maternal-Infant Bonding.* St. Louis, Mo.: Mosby, 1976.

Klinzing, D., D. Klinzing, and P. Schindler. "A Preliminary Report of a Methodology to Assess the Communicative Interaction Between Hospital Personnel and Hospitalized Children." *American Journal of Public Health* 67: 670, July 1977.

Kopelman, L. "Genetic Screening in Newborns: Voluntary or Compulsory." *Perspectives in Biology and Medicine,* Autumn, p. 84, 1978.

Layde, P., S. Von Allmen, and G. Oakley. "Congenital Hypothyroidism Control Programs. A Cost Benefit Analysis." *Journal of the American Medical Association* 241: 2290, May 1979.

Lessler, K. "Screening, Screening Programs and the Pediatrician." *Pediatrics* 54: 608, November 1974.

Levy, H. and G. Hammersen. "Newborn Screening for Galactosemia and Other Galactose Metabolic Defects." *Journal of Pediatrics* 92: 871, June 1978.

MacQueen, J. Presidential Address read before the annual meeting of the American Academy of Pediatrics. Washington, D.C.: October 1975. Quoted in Hoekelman, R. "Primary Care: We Need All the Help We Can Get!" *Pediatrics* 59: 315, March 1977.

Medina, A. S. "Hispanic Reproductive Health in California, 1976–1977." Keynote speech at the Annual Department of Health, Education, and Welfare, Public Health Service Hispanic Heritage Week Celebration, Rockville, Md., September 11, 1979.

National Center for Health Statistics. "Acute Conditions. Incidence and Associated Disability, United States, July 1976–June 1977." *Vital and Health Statistics.* DHEW Publication No. (PHS) 78-1553, Series 10-No. 125. Public Health Service. Washington, D.C.: U.S. Government Printing Office, September 1978.

The National Foundation March of Dimes, Committee on Perinatal Health. "Toward Improving the Outcome of Pregnancy." White Plains, N.Y., 1976.

National Research Council. *Toward a National Policy for Children and Families.* National Academy of Sciences, Washington, D.C., 1976.

Needleman, H., C. Hunnoe, V. Leviton, R. Reed, H. Peresie, C. Maher, and P. Barrett. "Deficits in Psychologic and Classroom Performance of Children with Elevated Dentine Lead Levels." *New England Journal of Medicine* 300: 689, March 29, 1979.

Newberger, E., C. Newberger, and J. Richmond. "Child Health in America: Toward a Rational Public Policy." *Milbank Memorial Fund Quarterly.* Health and Society 54: 249H, Summer 1976.

North, A. F., P. Wilkinson, and T. Oliver. "Regional Planning of Hospital Facilities for Children." *American Journal of Diseases of Children* 131: 400, April 1977.

North, A. F. "Infant Care." Children's Bureau, Office of Child Development, Department of Health, Education and Welfare, 1973.

North, A. . "When Should a Child be in the Hospital." *Pediatrics* 57: 540, April 1976.

North, A. F. Reply to letter to the Editor, *Pediatrics* 60: 764, November 1977.

Oseid, B. "Breast-feeding and Infant Health." *Clinical Obstetrics and Gynecology* 18: 149, 1975.

Philip, A. *Neonatology, a Practical Guide.* Flushing, N.Y.: Medical Examination Publishing Co., 1977.

Pless, I. B. "Accident Prevention and Health Education: Back to the Drawing Board." *Pediatrics* 62: 431, September 1978.

Pless, I. B., B. Satterwhite, and D. Van Vechten. "Chronic Illness in Childhood: A Regional Survey of Care." *Pediatrics* 58: 37, July 1976.

Reinhard, J. "Syndromes of Deficits in Parenting: Abuse, Neglect and Accidents." *Pediatric Annals* 6: 628, October 1977.

Reinisch, E. and R. Minear. *Health of the Preschool Child.* New York, N.Y.: John Wiley & Sons, 1978.

Roskies, E., M. Mongeon, and B. Gagnon-Lefebvre. "Increasing Maternal Participation with Hospitalization of Young Children." *Medical Care* XVI: 765, September 1978.

Rothschild H. and R. Luker. "Advocacy and Compliance Factors in a Voluntary Selective Screening Program." *Southern Medical Journal* 70: 184, February 1977.

Sandler, A. and V. Haynes. "Nonaccidental Trauma and Medical Belief: A Case of Cupping." *Pediatrics* 61: 921, June 1978.

Scriver, C., M. Feingold, P. Mamunes, and H. Nadler. "Screening for Congenital Metabolic Disorders in the Newborn Infant: Congenital Deficiency of Thyroid Hormone and Hyperphenylalanemia." *Pediatrics* 60: 389, September 1977.

Sells, Clifford. "Microcephaly in a Normal School Population." *Pediatrics* 59: 262, February 1977.

Silva, R. J. "Report of Fact Finding Survey Concerning Outbreaks of Hepatitis in Maricopa County (Phoenix, Arizona) Day Care Centers, July 10–13, 1979" Administration for Public Services, OHO, DHEW, San Francisco, Calif., July 27, 1979.

Somers, A. R., ed. *Promoting Health, Consumer Education and National Policy.* Aspen Systems Corp., Germantown, Md., 1976.

Storch, G., L. McFarland, K. Kelso, C. Heilman, and C. Caraway. "Viral Hepatitis Associated with Day Care Centers." *Journal of the American Medical Association* 242: 1514, October 5, 1979.

Subcommittee on Oversight and Investigations of the Committee on Interstate and Foreign Commerce. "Department of Health, Education and Welfare's Administration of Health Programs: Shortchanging Children." House of Representatives Ninety-Fourth Congress, second session, September 1976.

Vahlquist, B. "Child Health Across Boundaries." *Pediatrics* 59: 154, February 1977.

Vickery, D. and J. Fries. *Take Care of Yourself.* Reading, Mass.: Addison-Wesley, 1976.

ADOLESCENTS: HEALTH STATUS AND NEEDED SERVICES

by
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INTRODUCTION

Promoting the health of adolescents is a particularly difficult task because of the unique physical and psychological characteristics of the years between childhood and full maturity. Not only is this a period of rapid growth and change in anatomy and physiology, but it is also a time of shifting value systems and allegiances. During this period many young females and males become concerned with their bodies and how they work, yet they move away from those who might help them understand: their parents, teachers, counselors, and other authority figures. On the threshold of adult life, many do not have the cognitive powers essential to perceive the consequences of today's actions for the years ahead. They seek advice and models of behavior in their peers and make decisions on the basis of the immediate present rather than the distant future.

Health problems that have emotional or psychological components, often in addition to anatomical or physiological bases, are very important in this age group. Examples of such problems are motor vehicle and other accidents, suicides, substance abuse, and weight control. The prevention or treatment of these health problems requires a broad-based approach to health care including an understanding of adolescent psychology and insight into the environment from which the adolescent comes.

The cognitive and psychological changes of the adolescent years have important implications for the delivery of health and related services. Released from childhood dependence, most adolescents do not proceed directly to adult responsibility. Rather, many pass through stages characterized by an "it can't happen to me" ideology and a critical appraisal of adult values and practices. These attutudes, coupled with anxieties about bodily changes, make it essential that services be developed specifically for this age group.

Another important factor to consider in planning services is the significance of peer relationships at this age. Many attitudes, values, and behaviors are likely to be modeled on those of the social group. It is very difficult for adolescents to take actions that will put them "out of step" with others of their age. Personnel trying to prevent harmful or promote

healthful behavior should be aware of the power of the peer group and consider its use as an instrument of change.

Ironically, the questioning, independence-seeking, and risk-taking behaviors of adolescents are psychologically healthy ones. If adolescents are to develop into well-functioning adults they must renegotiate their relationships with their families and others who have guided them and assumed responsibility for their actions since they were children. If they are to be the innovators and leaders of the next generation, they must tread new paths, take risks, and test the assumptions of previous generations. While trying to promote the health of adolescents, the health system must beware of creating physically healthy adolescents who are dependent, passive, and fearful.

The needs of adolescents have only been an important concern to the health and social welfare field since the Second World War. In earlier times, only a small percentage of those in their middle or late teens were still students. Many young males were employed and young females were also working inside or outside their homes. Society's needs for more skilled workers, and the dearth of jobs for the unskilled or semiskilled, in conjunction with a lowering of the age of sexual maturity, have caused a prolongation of the years between childhood and full adult status and contributed to the creation of the period now called adolescence. (See background chapter in *Youth: Transition to Adulthood (1)*.) This prolongation and the feelings of anomie that it seems to foster apparently has created or intensified some health problems that either previously did not exist or were not recognized as such, including accidents, suicides, adolescent pregnancy, and alcohol and drug abuse. Also, with the increased control of infectious diseases, society could begin to concentrate on other sources of disability and death, and their precursors. In this context the adolescent came into focus. Not only did many adolescent behaviors appear to have negative consequences for their present and future health, but they were behaviors (for example, sexual activity or alcohol use) that many adults felt were inappropriate for those who were still students or economically dependent.

It is important, moreover, for those in the health and social welfare fields to realize that just as trends in education and employment have helped create some adolescent health problems, changes in these and other areas may be more effective than medical interventions in alleviating them. A more meaningful educational system and the possibility of employment in challenging occupations might motivate many adolescents to adopt healthy lifestyles. When both the present and the future look dismal, there is little incentive to seek help for medical or other problems or to avoid health-threatening behaviors. In the absence of changes in the social policies that cause adolescents to despair, medical and other social welfare interventions will have only a limited impact—particularly upon the underprivileged.

INFORMATION NEEDED FOR PLANNING

At a minimum, five types of information are essential to the effective planning of programs focused on the promotion of the health of

adolescents.[1] The first is an understanding of the normal growth and development of youths physically, emotionally, and cognitively during the adolescent years. Only with an understanding of the stages of development, their timing, and the behaviors associated with each stage is it possible to anticipate both medical and psychological problems and the reactions of adolescents to attempts to assist them.

The second is information about the number of adolescents in the population, the numbers that can be expected in the remaining years of this century, and their sociodemographic characteristics.

The third is knowledge about abnormal health status, particularly the causes of death, disease, disability, and discomfort; and today, the prevalence of deviant behavior can be added to the traditional four D's. The Federal Government through its varied data collection procedures can provide nationwide information in many of these areas, while important supplemental information can be obtained from studies of subgroups of the adolescent population.

A fourth important input is information about the utilization of services currently available. Although clearly these data do not measure need (at best they only approximate demand), they provide some useful insights into the effectiveness of various elements of the present health delivery service.

Finally, reports on what adolescents themselves perceive their needs to be and their suggestions about the operation of programs can assist in planning.

Normal Adolescent Development

The physical changes during the adolescent period are dramatic—and at times upsetting—to both adolescents and their parents. A rapid increase in height and weight is easily noticed and norms have been established, largely through the work of Tanner (*2*) who stated that the adolescent growth spurt

> . . . in boys takes place on the average, from 12 ½ to 15, and is responsible for a gain in height of about 20 cm. (range 10–30 cm.) accompanied by a gain in weight of about 20 kg. (range 7–30 kg.). The peak velocity of height growth averages about 10 cm. (4 inches) per year, which is the rate the boy was growing at age 2. The time at which this maximum velocity is reached averages about 14 years, though it may lie anywhere between 12 and 17. In girls the spurt begins about 2 years earlier than in boys, lasts on the average from 10 ½ to 13, and is somewhat smaller in magnitude, the peak height velocity averaging about 8 cm. per year.

Data from Cycle III of the 1966–1970 Health Examination Survey (*3*), suggest that the growth spurt may be occurring in the United States about 6 months earlier for boys and about 3 months earlier for girls.

Of possible great concern to adolescents is the rapid sexual development during the teen years. Both sexes are challenged by alterations in body configuration and characteristics: male genital development, female

[1]The current status of knowledge in each of these areas is summarized in the sections that follow.

breast development, and growth of axillary and pubic hair. Males experience changes in voice quality and nocturnal emissions while females adjust to the menstrual cycle. These physical changes are accompanied by the development of sexual interests.

It is crucial, however, that individual differences in rates of growth and development be understood. Not only are there racial differences, but individuals within each race may vary widely, probably as a result of the interaction of genetic and environmental conditions. Adolescents frequently exhibit concern over their rate of development in relation to their peers or to norms they believe exist. The helping professions must be able to reassure adolescents based on a knowledge of individual variability and, when a significant deviation from the norm is discovered, be knowledgeable about the possible reasons and interventions.

The psychosocial changes and cognitive growth of the adolescent years sometimes are as dramatic as the physical. These changes have probably been most extensively discussed by Erikson (*4*), who stressed the task of identity formation through the adolescent years. Among the significant occurrences are a changing of relationships with the family. Most adolescents gradually loosen their bonds to their parents and attempt to assert their independence. This is accompanied by increasing dependence on peers for social support. The peer culture at this age may significantly affect all types of behavior, from determining what will be worn to whether female virginity is an asset or a liability. These pressures combined with physical growth and development and interest in the opposite sex, lead to increased interest in body image. Intellectual ability may increase markedly. In addition, for many, the later years of adolescence are a time of decision about future roles in life.

Again, however, there is tremendous variability in the timing of these changes and in their manifestations. Some adolescents grow into adulthood with few crises, while others become defiant, rebellious, and often deviant. Effective parenting can be a significant factor in assisting adolescents to negotiate this period successfully. As Conger has noted:[2]

> Parents who are caring and encouraging of self-will and independence, but who also have clear standards and expectations, are significantly less likely to have children who as adolescents become involved in alcohol and drug abuse, premature sexual activity, delinquency, school problems, alienation, etc. than parents who are either authoritarian, on the one hand, or "equalitarian," overly permissive, or neglectful, on the other. Their children are also more likely to feel wanted, be more self-confident and independent, have respect for their parents and their parents' values, and maintain communication with their parents.

The helping professions cannot ignore the psychosocial needs of adolescents any more than they can ignore their physical needs. To treat them as children, or as adults, in most cases is to turn them away. An understanding of the new relationship with parents, particularly the independence-dependence tension, and of the importance of the opinions of their peers is essential if health promotion efforts are to be effective.

[2]Conger, J. J. Personal communication.

Demographic Profile[3]

In 1978, 24 million persons in the United States, about 11 percent of the total population, were 12–17 years of age.[4] About 84 percent of these children and youths were white, 14 percent were black, and the remaining 2 percent were of other racial backgrounds (table 1)(*5*).

Because the children who will be adolescents in the year 2000 will not be born until 1983–88, and because predicting fertility is at best a risky business, projections of the size of this population vary greatly under the three fertility assumptions employed by the U.S. Bureau of the Census. The low fertility projections, Series III, assumes an average of 1.7 children per woman. This figure is considerably lower than is being experienced today and lower than the 2.1 children young married women say they expect. Thus it is unlikely that a decline of this magnitude will occur, and the future size of the population 12–17 years old will probably be as large or larger than it is today (table 2) (5–7).

During 1975–76 the southern region of the Nation was home for 32 percent of this age group, while only 18 percent lived in the west. This distribution was similar to the population of all ages. Racial differentials remained despite the high levels of migration within the United States. White youths were most nearly equally represented in all regions; 29 percent lived in the south and in the north central region, 24 percent in the northeast and 19 percent in the west. Black youths were still heavily concentrated in the south; more than half (55 percent) lived there in 1978, while only 9 percent were in the west. The other racial minority groups were as concentrated in the west (59 percent) as the blacks were in the south (*8*).

Most adolescents, like other people in the United States, resided in or near cities. Racial differences surfaced when central city residence was compared with suburban residence. Twenty-two percent of all white children lived in central cities compared to 52 percent of all black children. Farm residence was rare among all races. The largest proportion was in the white group (4 percent). The other minority groups were almost evenly split within standard metropolitan statistical areas between central and noncentral city areas; 44 percent were in the cities and 40 percent were outside (*8*).

Almost one-quarter of the adolescents in the United States came from families with only one parent present; 19 percent of the white, 29 percent of the black, and 28 percent of the other minority adolescents. Fourteen percent of the black youths were in homes with neither parent present (*8*).

Despite overall national wealth, a large number of children were members of impoverished families. In 1977, 16 percent of all children under age 18 lived in families with incomes below the poverty level—11

[3]This section was adapted from material prepared by Mary Grace Kovar.

[4]The age span encompassed by adolescence is a matter of controversy. Some experts limit it to 12–17 years of age and others expand it to 10–20 years or beyond. This paper will not contribute to the debate; rather it will utilize whatever range seems appropriate to the subject under discussion. In the data section, however, the 12–17 grouping will be used most frequently since several large sets of Federal data are categorized this way. Some panel consultants, however, have commented that alternative, preferrably disaggregated groupings would improve knowledge of adolescent health needs.

TABLE 1. Estimate of the Population Aged 12–17 by Age, Sex, and Race: United States, 1978
(numbers in thousands)

Age	All Races			White			Black			Other Races		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
All ages	24,102	12,288	11,814	20,180	10,308	9,872	3,476	1,752	1,724	445	226	219
12 years	3,622	1,849	1,773	3,007	1,538	1,469	542	273	269	73	37	36
13 years	3,842	1,954	1,883	3,207	1,635	1,572	565	283	281	70	36	34
14 years	4,085	2,085	2,000	3,418	1,748	1,670	595	301	295	72	36	36
15 years	4,136	2,111	2,025	3,468	1,773	1,695	592	299	293	76	39	37
16 years	4,162	2,122	2,040	3,498	1,787	1,711	589	297	292	75	38	37
17 years	4,255	2,167	2,088	3,582	1,827	1,755	593	299	294	79	40	39

SOURCE: U.S. Bureau of the Census, 1979. "Estimates of the Population of the United States by Age, Sex, and Race: 1976 to 1978." *Current Population Reports*, Series P-25, No. 800. Washington, D.C.: U.S. Government Printing Office, Table 2.

TABLE 2. Estimates and Projections of the Population Aged 12–17 by Race: U.S., 1970, 1978, 1980, 1990, 2000
(numbers in thousands)

Year	All Races			White			Black			Other Races		
	Series I	Series II	Series III	Series I	Series II	Series III	Series I	Series II	Series III	Series I	Series II	Series III
1970[1]		24,125			20,604			3,180			343	
1978[2]		24,102			20,180			3,476			445	
1980[3]	22,737	22,737	22,737	18,913	18,913	18,913	3,356	3,356	3,356	466	466	466
1990[3]	19,939	19,240	18,781	16,115	15,542	15,153	3,149	3,039	2,979	677	662	650
2000[3]	29,784	24,066	20,567	24,714	19,720	16,768	4,107	3,469	3,007	964	876	791

[1]Source: U.S. Bureau of the Census, 1972. Census of Population, 1970. General Population Characteristics, U.S. Summary PC(1)-B1. U.S. Government Printing Office, Washington, D.C., Table 50.
[2]Source: U.S. Bureau of the Census, 1979. Current Population Reports. Series P-25, No. 800. Estimates of the Population of the United States by Age, Sex, and Race: 1976 to 1978. U.S. Government Printing Office, Washington, D.C. Table 2.
[3]Source: U.S. Bureau of the Census, 1977. Current Population Reports. Series P-25, No. 704. Projections of the Population of the United States: 1977–2000. U.S. Government Printing Office, Washington, D.C. Tables 7-9.

percent of the white children, and 42 percent of the black children. Black children and those in families headed by women were substantially less well off financially than others. Half (50.3 percent) of the children in families headed by women were classified as existing below the poverty line; 40 percent of the white children, and 66 percent of the black children (*9*).

More than one-third (38 percent) of the adolescents lived in families headed by a person who had not completed high school, and one-third (34 percent) by a person who had completed exactly 12 years of school. Only 15 percent of the family heads had completed college. The family heads of black and other minority youths had less education than those of white youths; 36 percent of the black youths and 43 percent of other minority youths as compared to 33 percent of white youths were from families with a head who had not completed high school (*8*).

Adolescents participate in both child and adult roles. In most States the legal age of marriage is between 12–17 years of age. The number of teenagers who choose to assume this particular adult role, however, is declining. For the women born between 1935 and 1939, 151 out of each 1,000 had married by age 17; 262 by age 18. By the time the women born in 1950–54 reached age 17, only 75 per 1,000 had married; at 18 this figure was 155 (*10*). This change in teenage marital status has coincided with an overall decline in teenage fertility since the late 1950's, but an increase in the proportion of births that are out of wedlock.

This demographic profile suggests that the size of the population 12–17 years of age will remain relatively stable at 10–12 percent of the total population. It also points to significant differences in distribution and sociodemographic characteristics by race. Of perhaps greatest significance is the number living in or near poverty, in single parent homes, and/or homes headed by a parent with limited education. These conditions have major implications for the design of programs to alleviate health and allied social problems.

Health Status[5]

By the traditional morbidity and mortality measures, the health status of adolescents in the United States is good. The acute illnesses of childhood seldom plague them, and for the most part, the chronic conditions of later life are still ahead. Nevertheless, adolescents not only suffer from disability, disease, and death; they also endure the stresses of rapid growth and adjustment in a world that is not always friendly.

Mortality

In 1977 the death rate for children 10–14 years of age was 35.1 per 100,000 resident population, and for those 15–19 it was 101.6. These death rates compare favorably to those under 5 and those over 19, but obviously

[5]This section was adapted from material prepared by Mary Grace Kovar.

the 15–19 group is beginning to leave behind the relatively healthy era. Moreover, between 1960 and 1977 the death rate among 15–19-year-olds increased by 10 percent, largely because of increases in deaths from external causes such as suicide and motor vehicle accidents (*11*).

For every 10,000 adolescents alive at the beginning of 1976, 6 had died by the time that year ended—4.4 per 10,000 teens age 12–15 and 9.1 per 10,000 teens age 16–17. Accidents, particularly involving a motor vehicle, are the major cause of death among adolescents. Thirty-six percent of adolescent deaths are motor vehicle related; 28 percent of the deaths among 12–15-year-olds, and 43 percent of the deaths among 16–17-year-olds. Other major causes of teenage deaths are homicide (6.5 percent), drowning (6.3 percent), suicide (5.4 percent), and fire and flames (1.6 percent). If accidents and other violent deaths were eliminated among teenagers, the death rate at these ages would drop by 70 percent. The most common diseases causing death are malignant neoplasms (8.4 percent), including leukemia (3.2 percent) (*12, 13*).

Morbidity

The examining pediatricians in Cycle III of the Health Examination Survey of 1966–70 found that more than one out of five adolescents had some illness, deformity, or handicap (primarily physical) affecting normal growth, development, or function. Of those abnormalities diagnosed, 34 percent involved a neuromuscular joint, 33 percent were musculoskeletal, 21 percent were cardiovascular, and 8 percent were neurological. Kidney problems were present in 5 percent (*14*).

Visual and hearing abnormalities also afflicted large numbers of youths. Thirty-four percent wore corrective lenses; however, 31 percent of these still failed to reach the 20/20 level in vision testing (*15*). Almost one adolescent in six (16 percent) had some abnormality of one or both auditory canals, and one in seven (15 percent), had some abnormality of the tympanic membrane or drum. These problems were associated with hearing difficulties in about 1 percent of adolescents (*16*).

The Health and Nutrition Examination Survey (HANES) of 1971–74 revealed that almost two-thirds (67.5 percent) of the adolescents needed dental care; over half (53.6 percent) had one or more decayed teeth. Young people 12–17 years of age had an average of 6.2 decayed, missing, or filled teeth. About one-third had gingivitis or evidence of more serious periodontal disease (*17*).

HANES found significant skin pathology in 36 percent of adolescents 12–17 years of age. Acne vulgaris was the most prevalent condition, affecting 23 percent of youths. Forty-seven percent of adolescents with skin conditions that concerned them indicated that the conditions were a handicap in their social relations (*18*).

The stress of the adolescent years also may affect the mental health of adolescents. Perhaps the most dramatic indicator is suicide. This is currently the fourth leading cause of death in the teenage years—resulting in approximately 5,000 deaths per year (*19*). The President's Commission on Mental Health noted that the rate of suicide among adolescents has nearly tripled in the last 20 years (*20*). Suicide attempts are even more

common, especially among females, as are various forms of depressed behavior in both sexes.

Little data are available on the prevalence of mental illness, so it is necessary to examine rates of utilization of inpatient and outpatient facilities to determine the extent of the problem. Mental disorders were the fourth ranking reason for hospitalization of youths 12–17 years of age in short-stay hospitals, accounting for 11 percent of all days (*20*).

According to the National Institute of Mental Health, over 80,000 youths 10–17 years of age were admitted to inpatient psychiatric services (private, State and county, and public and nonpublic general hospitals) in 1975—a rate of 126.5 per 100,000 ages 10–14 and 433.4 per 100,000 ages 15–17.[6] Outpatient psychiatric services were used by over 200,000 youths 10–17 years of age—a rate of 657.3 per 100,000 ages 10–14 and 748.5 per 100,000 ages 15–17. Schizophrenia, adjustment reactions, and depressive disorders were the most frequent diagnoses.

These figures probably underestimate the extent of the problem since many disturbed adolescents are placed in institutions for the delinquent, criminal, or retarded. The disparity in rates of mental institutionalization by race suggests that white adolescents with mental or behavioral problems are admitted to psychiatric facilities, while minority adolescents are confined within the correctional system.

Studies of subgroups of adolescents known to be particularly vulnerable for economic or other reasons underscore the prevalence of health problems. Brunswick and Josephson studied the self-reported and the professional appraisal of health among black youths in Harlem in the late 1960's. Three-quarters of their sample reported at least one health problem and the average number of self-reported health problems was three. Physicians examining the same population found a medical problem in two out of three. One in three had two or more notable health problems (*21*).

Schonberg and Cohen have examined adolescents in a variety of settings. The most frequent reasons for admission to an adolescent inpatient unit were general surgery (11 percent) and gastrointestinal illnesses (11 percent), including drug-abusing teenagers admitted for care of hepatic dysfunction. In an adolescent ambulatory care setting, venereal disease (12 percent) and contraception (11 percent) led the list of reasons for seeking care. Over 45,000 teenagers, mostly male, minority, and poor, were examined over a period of several years in a secure detention facility. An identifiable medical problem was found in 46 percent, including 30 percent with a history of drug abuse, and acute or chronic hepatitis secondary to intravenous abuse in 8 percent. Examinations of an all-male, predominantly black high school population revealed dental caries (35 percent) and infections, primarily of skin and genital areas (7 percent) as the most prevalent condition. About half the teenagers were unaware of the infections. Finally, the 350 teenagers in a series of group residences suffered most frequently from dermatological conditions, including acne, eczema, and contact dermatitis (80 percent) and dental cavities (55 percent) (*22*).

[6]National Institute of Mental Health. Unpublished data.

Another measure of morbidity is restricted activity. On the average, adolescents 12–17 years of age are reported by their parents as having about 10 days of restricted activity each year and losing about 5 days from school because of illness or injury. About 5 percent are said to be limited in activity and about the same proportion in fair or poor health (*8*).

Reasons for seeking medical care provide another indicator of the significance of trauma to adolescent health. Accidents and violence were second only to respiratory problems as the diagnosis leading to visits to office-based physicians in 1975–76. They were the leading diagnosis for days in short-stay hospitals, as well as the first cause of death. Twenty-three percent of the hospital days, and 70 percent of all deaths of 12–17-year-olds are because of accidents and violence. Pregnancy and delivery were the second most important diagnoses for hospital days. For females they were the leading reason for hospitalization (*23*).

If visits to all medical care facilities rather than just office-based physician visits were included in the calculations, both trauma- and pregnancy-related diagnoses might rank higher on the list. Care for many injuries is sought in hospital emergency rooms. Contraceptive services are often received in family planning clinics. Many pregnant adolescents seek prenatal care in hospital or health department clinics.

Behavior-Related Problems

Adolescents experiment with a variety of behaviors that may have short- and long-range consequences for their health. These behaviors include tobacco smoking, drinking of alcoholic beverages, use of illegal substances, and sexual intercourse. Venereal disease and accidents due to intoxication are examples of immediate consequences, but the effect of these behaviors on adult morbidity may be equally severe.

In 1979, 11 percent of 12–18-year-old males and 13 percent of 12–18-year-old females were current smokers. This represented a decrease from 17 percent in 1968 for the boys, but an increase from 10 percent in 1968 for the girls (*24*)

According to a 1979 study of high school students, alcohol was the leading drug used. Nearly all students had tried alcohol (93 percent) and most (72 percent) had used it in the past month, in comparison to 74 percent and 34 percent for smoking tobacco and 60 percent and 37 percent for smoking marihuana. Although only 7 percent of students reported daily alcohol use, 41 percent had on at least one occasion during the two weeks before the survey, had five or more drinks in a row (*25*). Alcohol use appears to be on the increase.

Marihuana use has definitely increased. In 1972, 14 percent of 12–17-year-olds reported ever using and 7 percent using in the past month; by 1979 the figures had more than doubled to 31 percent and 17 percent.

Use of other illicit drugs is considerably below that of marihuana, but still a major problem. Ten percent of the 12–17-year-olds have used inhalants; 7 percent, hallucinogens; and 5 percent, cocaine. Current use percentages are much lower. Only the hallucinogens showed a significant

increase in use ever between 1977 and 1979 and only the inhalants a significant increase in use in the past month (*26*). The danger of illicit drug use is compounded when drugs are used in combination, or with alcohol. In addition, these drugs are of unknown potency and often contaminated, which increases their potential to cause health emergencies.

Another health-related behavior is sexual activity, the consequences of which may include pregnancy and sexually transmitted diseases. Zelnik and Kantner report that the prevalence of sexual activity among never married U.S. teenagers increased by 30 percent between 1971 and 1976; so that by age 19, 55 percent have had sexual intercourse (*27*). If all other factors had remained the same, the substantial increase in sexual experience would have been expected to result in an increase of adolescent fertility. Instead, adolescent birth rates, which had been rising through 1973, have recently been declining, as have absolute numbers of births to adolescents. The birth rate is still high among black adolescents, however, it too has dropped (from 101.4 live births per 1,000 women 15–17 years of age in 1970 to 81.2 per 1,000 in 1977)—closer to the white rate of 26.5. Among girls not yet 15 years of age the birth rate has remained constant at around 1.2 since 1970. Although these births (over 12,000 in 1972–1975) are only a very small proportion of all births, very young mothers are especially unprepared physiologically, psychologically, economically, or educationally for parenthood (table 3).[7]

The decline in adolescent birth rates is presumably due both to increasing reliance on abortions to terminate unplanned pregnancies and to effective contraceptive use. This does not mean, however, that contraceptive use in this age group is at an optimum level; Zelnik and Kantner found that only 30 percent of sexually experienced never-married females, 15–19 years of age always used contraceptives (*27*). It should not be assumed, however, that all adolescent pregnancies, even in the unmarried, are unwanted. For many young females, having a baby is seen, somewhat unrealistically, as a very positive experience. Such births cannot be prevented by contraceptives or by abortions, but only by changes in adolescents' perceptions about their futures.

Sexually transmitted diseases are another adverse consequence of sexual activity, and gonorrhea is the most common. By the mid-1970's, gonorrhea had reached epidemic proportion in the United States. Recent data, however, suggest that the rate has stabilized (*28*).

Data on the exercise and nutrition patterns of adolescents are meager. Fad diets and "fast foods" are popular with this age group, and may result in caloric and nutrient intakes that are health damaging. Data from HANES suggest that the mean dietary intake by adolescents of both calories and iron was below the recommended daily allowance for adolescents with income both below and above the poverty level (*29*). Some adolescents, however, consume too many calories; approximately 10 percent of all adolescents are obese.

[7]Division of Vital Statistics, National Center for Health Statistics. Selected data.

TABLE 3. Live Births, Birth Rates, and Distribution of Births to Women Under 18 Years of Age, According to Age of Mother and Race: United States, 1966–1977. (Data are based on the National Vital Registration System)

Race and Year	Number of Live Births		Live Births Per 1,000 Women		Percent of All Live Births[2]	
	10–14 Years	15–17 Years	10–14 Years	15–17 Years	Under 15 Years	Under 18 Years
Total[1]						
1966	8,128	186,704	0.8	35.7	0.2	5.4
1967	8,593	188,234	0.9	35.3	0.2	5.6
1968	9,504	192,970	1.0	35.1	0.3	5.8
1969	10,468	201,770	1.0	35.7	0.3	5.9
1970	11,752	223,590	1.2	38.8	0.3	6.3
1971	11,578	226,298	1.1	38.3	0.3	6.7
1972	12,082	236,641	1.2	39.2	0.4	7.0
1973	12,861	238,403	1.3	38.9	0.4	8.0
1974	12,529	234,177	1.2	37.7	0.4	7.8
1975	12,642	227,270	1.3	36.6	0.4	7.6
1976	11,928	215,493	1.2	34.6	0.4	7.2
1977	11,455	213,788	1.2	34.5	0.3	6.5
White						
1966	2,666	119,800	0.3	26.6	0.1	4.1
1967	2,761	118,035	0.3	25.7	0.1	4.1
1968	3,114	121,166	0.4	25.6	0.1	4.3
1969	3,684	126,156	0.4	26.4	0.1	4.4
1970	4,320	143,646	0.5	29.2	0.1	4.8
1971	4,130	143,806	0.5	28.6	0.1	5.1
1972	4,573	150,897	0.5	29.4	0.2	5.9
1973	4,907	153,416	0.6	29.5	0.2	6.2
1974	5,053	152,257	0.6	29.0	0.2	6.1
1975	5,073	148,344	0.6	28.3	0.2	6.0
1976	5,054	139,901	0.6	26.7	0.2	5.6
1977	4,671	138,223	0.6	26.5	0.2	5.3
Black						
1966	5,370	64,922	4.2	97.9	1.0	12.6
1967	5,742	68,133	4.4	99.5	1.1	13.6
1968	6,312	69,594	4.7	98.2	1.2	14.3
1969	6,650	71,020	4.8	96.9	1.2	14.3
1970	7,274	76,882	5.2	101.4	1.3	14.7
1971	7,264	79,238	5.1	99.7	1.3	15.3
1972	7,363	82,217	5.1	99.9	1.4	16.9
1973	7,778	81,158	5.4	96.8	1.5	17.4
1974	7,291	77,947	5.0	91.0	1.4	16.8
1975	7,315	74,946	5.1	86.6	1.4	16.1
1976	6,621	71,429	4.7	81.5	1.3	15.2
1977	6,582	71,182	4.7	81.2	1.2	14.3

[1]Includes all other races not shown separately.
[2]Base of percent includes births to all women regardless of age.

SOURCE: Division of Vital Statistics, National Center for Health Statistics: Selected Data.

Service Utilization[8]

In the mid-1970's, adolescents averaged about 3 ambulatory medical contacts each year. The majority (68 percent) were in physicians' offices. About 15 percent were in hospital outpatient departments or emergency rooms, 11 percent were telephone contacts, and 6 percent were either in other places or the household respondent did not know the place. This is less than the number of contacts reported for younger age groups (under 6, 6.5 contacts; 6–11, 3.4 contacts) and older ones (*8*).

About a third (34 percent) of the adolescents had no medical contact during the year and 5 percent had not seen a physician for at least 5 years. The likelihood of having seen a physician during the year increased somewhat with increased family income and increased greatly with increased parental education. Only 57 percent of the adolescents had seen a physician within a year if the family income was under $5,000 and the mother had not finished high school; 81 percent had if the family income was $15,000 or more and the mother was a college graduate. Even when the family income was relatively high ($15,000 or more) the likelihood of the adolescent's seeing a physician within a year was relatively low (63 percent) if the mother had not finished high school (*8*).

Income was a major determinant of the place where medical care was received. In families with incomes under $5,000, 56 percent of the visits were to private physicians, 22 percent to hospital clinics or emergency rooms, and 13 percent to other clinics. In families where the income was $15,000 or more, 72 percent of the visits were to private physicians, 11 percent to hospital clinics or emergency rooms, and 3 percent to other clinics (*8*).

Access to care, as usually defined, did not appear to be a major problem, at least to the respondents (usually the mother). For example, about 12 percent of the adolescents had no regular source of care. When asked the reason, the majority (57 percent) said there was no need. The next most common specific response (18 percent) was that different sources were used depending on need, but a larger proportion (26 percent) gave no reason. Very few (7 percent) of the respondents reported that they had tried to obtain medical care during the year but had a problem; the most common problem was that they could not get an appointment as soon as needed. Even fewer (4 percent) reported that the adolescent had an unmet health need (*30*).

These data may not accurately reflect adolescent utilization. Adolescents receive health care at clinics and health centers such as VD clinics, family planning clinics, teenage health centers, and community mental health centers. Whether those visits are known to the parent or, if known, are reported by the household respondent is an unanswered question.

In the dental area, about a third (36 percent) of adolescents were reported to have had no dental care within a year; 11 percent had not seen a dentist for 5 years or more. Lack of dental care is even more strongly

[8]This section was prepared by Mary Grace Kovar.

associated with income than lack of medical care. For example, 64 percent of the adolescents in families with incomes under $5,000 in contrast with 24 percent in families with incomes of $15,000 or more had not seen a dentist within a year; 78 percent and 55 percent respectively needed dental care (*8*).

Additional information is available about the utilization of one specific service, family planning. Dryfoos and Heisler reported that about 1.2 million females under the age of 20 obtained contraceptive care from 2,494 agencies in about 2,500 counties in 1975. This represented 30 percent of the 3.9 million patients in organized programs. Although their study did not include services provided by private physicians, they estimated that an additional 1.2–1.3 million teenagers received contraceptive care from the private sector in 1975. The growth in utilization of family planning clinics by teenagers has been dramatic—from under 300,000 in 1969 to over 1 million in 1975. Health departments served the largest proportion (47 percent) followed by Planned Parenthood affiliates (28 percent) and hospitals (13 percent) (*31*). These figures undoubtedly reflect the increasing number of females in this age group, their increasing sexual activity, the liberalization of State laws on the provision of services to this group, and a more responsible attitude toward sexual activity by adolescents.

Needs as Perceived by Adolescents

There are relatively few studies of adolescents' perceptions of their own needs or of their preferences in the area of health care services. Parcel et al. found that adolescents in two Galveston high schools were concerned about school, drugs, sex, parents or family, getting along with adults, birth control, venereal disease, pregnancy, and menstrual periods—in that order. When asked to indicate on a list of health problems those they would like to have help with, they most frequently checked acne, how far to go with sex, depression and sadness, overweight, and getting along with parents (*32*).

Several federally sponsored studies have addressed adolescents' feelings about family planning facilities. On the basis of interviews with clinic personnel, patient questionnaires, and patient interviews, one research team concluded that there were three threshold conditions a clinic had to meet to attract teens: (1) make its availability known, (2) guarantee confidentiality and anonymity, and (3) be affordable. Secondary factors influencing an initial visit were location, ease of transportation, convenience of clinic hours, length of appointment wait, and ease of admission. Factors influencing satisfaction with service and inclination to continue attending were interaction with clinic staff, confidentiality, length of processing time, and method of payment. Less important were sex, age, and dress of staff, professional qualifications, teen-oriented decor, and teen-only sessions (*33*).

HEALTH SERVICES THAT SHOULD BE AVAILABLE TO ALL ADOLESCENTS

The information provided in the series of studies just reviewed suggests that a large number of services are essential to adolescent life or adequate development, or at least could significantly improve health status or general well-being. These services will be reviewed in a sequence that reflects the author's views on which ones will affect the largest number of adolescents and may have the greatest impact on adolescent health in the long run. Those discussed first will touch the most; those mentioned later focus on smaller groups. The problem of priorities, however, can be examined from another perspective, namely the urgent need to intervene in crisis situations. Many of the services directed at subpopulations with special needs because of health problems (such as pregnant adolescents) or physical location (street people, for example) are essential if major health problems are to be corrected or prevented. It is impossible to suggest that they should be ignored in favor of health promotion activities whose "pay-off" is uncertain. Clearly the answer is to find funds for both types of activities; a choice between them is impossible.

Health Promotion

The data on causes of death and disability and service utilization suggest that programs of health promotion should have a significant impact on adolescent health. Health promotional activities, however, should not begin in adolescence. They should be initiated in early childhood and be reformulated in the adolescent period so that they are appropriate to the developmental stage.

Attempts at health promotion in its broadest sense must be viewed in the larger context of the adolescent's world. As in so many other areas, it is impossible to separate health from economic and other social problem areas. For the adolescent who by law in most States must remain in school until middle adolescence, the educational environment is of great significance. Students who find their studies interesting and relevant are more likely to be interested in their health and to absorb the health curriculum. If the school is a "hassle," alternative sources of satisfaction and challenge will be sought, frequently those having a negative health impact. It is important that schools enhance rather than reduce student's self-esteem. Brunswick et al. have reported that a sense of personal efficacy and self-esteem are associated with high levels of medical care relative to health problems (*34*). Self-esteem is enhanced when students are challenged by a variety of tasks that they can master. Those that are too hard may cause a sense of defeat, while those that are too easy do not provide enough stimulus. Although minimum levels of competency in reading, writing, and mathematics should be expected of all youths in the normal intelligence range, the academic-nonacademic balance of the curriculum should be varied according to student need. Additional

emphasis on prevocational training, athletics, music and art, outdoor activities, and a range of community service projects may provide the challenges necessary both to enhance self-esteem and to keep less intellectually oriented adolescents within the educational system where academic progress may still be made.

Similarly, the employment area has a significant impact on the adolescent and his attitudes toward health, both indirectly and directly. The unemployment or underemployment of parents can have a negative effect on adolescents. They may be forced to enter the labor market prematurely to support their families and themselves, or may be needed at home for domestic tasks while other family members work multiple shifts. An unemployed or underemployed mother or father also provides a very poor role model. In addition, adolescents can react directly to a job market that discourages employment of teenagers or cannot absorb all adults seeking work. If jobs are not available during the adolescent or adult years, the adolescent's motivation to study or to take other future-oriented action may be weakened. A full employment policy has the potential for significant impact on adolescent health-related behavior.

Health promotion for adolescents can take many forms. A challenging educational environment and a full employment policy have been suggested; health education in schools, through youth-serving groups, during medical encounters, and through the mass media are others. The school has the potential for reaching the largest number, but several obstacles must be overcome before this is realized. One is the resistance of school administrators and school boards to investing the resources in energy, time, and money necessary for effective health education. In an era of "back to basics" and "competency-based" curricula, health education may be perceived as a fringe activity. Clearly it is not. It can be what makes other activities productive.

School administrators and school boards are also reluctant to allow schools to educate adolescents in controversial areas such as sex and drugs. Fear of experimentation or of modifications of moral values, a belief in the responsibility of the family in these areas, and similar well-meaning motives underlie this reluctance. It is interesting that most public opinion surveys indicate that parents are willing to have their children receive informaton about sex and contraception in schools. The resistance frequently encountered in communities, therefore, may have its sources in a small but vocal group of parents, nonparents, and those who believe that the proposed programs will not restrict themselves to the transmitting of information, but will move into areas of personal values.

A final obstacle is the traditional methods of health education in schools. Adolescents need to have information about the effect of their lifestyles on their present and future health, but this information must be presented in ways that are likely to influence their attitudes and behavior. General studies of adolescent health knowledge, as well as studies focusing on areas such as tobacco use and sexual activity, suggest that the vast majority of adolescents are not uninformed. They know smoking can cause cancer. They know that unprotected intercourse may cause pregnancy. And they know that adequate diet, exercise, and rest are essential for their health. There are areas in which their information is

inadequate and incorrect and should be augmented, but clearly provision of information is not the only or the most important need. Attitude and behavior change is.

It seems possible that current attempts to change adolescent life styles do not use the information currently available on adolescent cognitive and psychological development. Future orientation is not a characteristic of early adolescence. A catalog of "dos" and "don'ts" based on the impact of behavior on adult health status is unlikely to influence a 12–15-year-old. Nor are adolescents of any age eager to adopt a behavior at variance with that of their peers. Methods need to be developed that make positive use of peer pressure rather than struggle against it. Adolescents' striving for independence and their distrust of authority figures can also be used to strengthen programs. Fear will not motivate adolescents; enhancement of self-image will.

Didactic classroom preparations often do not make use of these psychological facts. More informal classroom settings, materials that are relevant to adolescent needs and concerns, instruction in decisionmaking techniques, use of peers both in the classroom and in informal sessions, peer counseling, and similar methods need to be explored. Smoking prevention programs in several cities have reported some success with some of these nontraditional methods (*35, 36*), as have programs aimed at preventing adolescent pregnancy (*37*). School personnel, including nurses, counselors, and others, need to be alerted to their opportunities for health education and provided with the training necessary for their utilization.

Similar techniques should be incorporated into the programs of scouts, church youth groups, and other community-based, adolescent-oriented programs. These youth groups should both plan programs of health education and utilize teachable moments.

The content of a school based or youth group based program of health education will need to vary according to the age of the students and the preferences of the community. Areas that should receive serious consideration, however, include normal growth and development; the importance of nutrition and an adequate diet; healthy life styles including sufficient sleep and physical exercise; self-care including dental hygiene; home treatment of minor injuries and illnesses, and signs and symptoms that indicate the need to seek professional help; problems associated with smoking and alcohol and drug use, and how these habits can be avoided; fertility-related issues including human reproduction, family planning methods, and the prevention of venereal disease; and how to be an intelligent consumer of medical services.

It is urgent that parents be involved in planning health education programs. Their early input may prevent later opposition. Also, parents should be given opportunities to share in the information provided their adolescent children, through educational programs designed for the parents and offered at their convenience, but covering some of the same material as the classroom or youth group. This not only allows them to check on what their children are being taught, but to discuss and possibly reinforce the message at home.

Health education programs should not be allowed to adopt a "disease of the week" approach, nor should a health education program depend on

a sequence of individual agency presentations on one or another condition or problem. There are many commonalities in adolescent health behavior including risk-taking, the need to make decisions under conditions of stress, and responsibility for one's actions. These should be the underlying themes of the health education curriculum, with the specific problems used as examples, rather than directing the program.

Another approach to health education often advocated is use of the mass media. Unfortunately, the ability of the mass media to affect adolescent health behavior has not been studied adequately. Many health agencies are using disc jockeys, rock stars, and athletes to bring their messages to youth. The idea would seem to be correct, but the impact has not been tested. Certainly adolescents are exposed to many more "pro-sex" influences on TV, in the movies, through recordings, and in advertising, than messages about family planning.

Early Detection and Treatment

Regardless of the effectiveness of health promotion activities, many adolescents will have conditions that will need to be diagnosed and treated. The early detection of these problems, in most cases, will make their treatment more effective. Early detection is promoted by periodic assessments of presumably healthy adolescents, by examinations of adolescents about to be subjected to certain stresses, and by seeking care promptly for significant symptoms.

Periodic Assessments

Since the adolescent period is considered a relatively healthy one for most youths, assessments of presumably healthy adolescents are recommended at relatively widely spaced intervals. The Institute of Medicine's background paper, *Preventive Services for the Well Population* (*38*) suggests one such assessment around age 13 with a second later in the 12–17 age period. Since many junior and senior high schools require complete physical examinations upon entry, at least part of this schedule is not left to the option of the parent, but is mandatory. Some pediatric groups have suggested assessments at more frequent intervals. Although yearly or biyearly assessments undoubtedly would provide opportunities for anticipatory guidance and health counseling, their cost effectiveness in terms of the limited possibility of detecting previously unknown conditions while utilizing scarce and expensive medical manpower can be questioned. Clearly, this is true only for the average adolescent. The adolescent at high risk for health problems because of preexisting conditions, the stress of athletics, employment at an early age, deviant behavior, or other factors would need assessments more frequently. Many States or individual school systems require initial or periodic examinations of athletes or adolescents applying for working papers.

The content of a health assessment for an adolescent has been outlined by Millar in documents prepared for the Department of Health,

Education, and Welfare, and for the American Academy of Pediatrics.[9] The following components are recommended: a medical history including family medical history and past medical history of patient, review of early growth and development, review of immunization, systems review, developmental psychosocial history, and account of school progress; a physical examination; and laboratory tests. The Institute of Medicine document (*29*) referred to earlier suggests the following services: at each visit, history and physical examination including weight, height, developmental assessment, blood pressure, vision and hearing testing, screening for scoliosis (girls, 9–10 years of age, or at first visit), and examination of skin; a serum cholesterol examination once between the ages 12 and 17; and tetanus and diptheria immunizations. The Institute of Medicine suggests that counseling and referrals as necessary and desired be provided in the following areas: nutrition, hygiene, accident prevention, physical activity and exercise, alcohol and other drug use, cigarette smoking, family relations, social problems, sexual development and adjustment, family planning wth contraception if appropriate, obesity, antecedents of adult disease, and other items in response to parental or individual concerns.

Other comprehensive discussions on the content of adolescent examinations have been prepared by Haggerty (*39*) and the Health Care Financing Administration (*40*).

Routine Medical Care

Early detection is also possible if the adolescent seeks care promptly for significant problems. The challenge in this area for the health field is multiple: to educate adolescents to recognize conditions that need professional attention (to distinguish between the transitory and the permanent, between those things that can be treated by the educated lay person and those that need a physician or nurse, etc.); to provide services that are easily reached; and to make these services acceptable to the adolescent population.

Adolescents need high-quality medical attention including diagnosis, treatment, and followup for a variety of problems. As the earlier review of studies indicated, upper respiratory ailments, digestive problems, skin conditions, and similar relatively routine complaints can be anticipated. Injuries resulting from a variety of causes also will require treatment. In addition, adolescents with chronic conditions will be frequent visitors to physicians and ambulatory care centers.

Of special importance in the current era of increased sexual activity is the detection and treatment of venereal disease. Many health departments have specialized clinics for these services, but many adolescents might feel more comfortable bringing their problem to a general adolescent health facility. Supportive, sensitive care is required if both adolescents and their contacts are to be screened and treated.

[9] Millar, H. E. C. Unpublished documents.

This group of services can be provided in many settings. Private physicians' offices, hospital outpatient departments, community health centers, health maintenance organizations, school clinics, and others. The focus and the staffing of these facilities is important if they are to be used effectively. The adolescents' desire for confidentiality and their frequent reluctance to use facilities that are child-oriented or adult-centered may necessitate the setting aside of special hours that are limited to adolescents, or the development of special adolescent facilities within larger medical institutions, or separate medical facilities in nonmedical programs for adolescents. Some hospitals and community health centers have organized separate adolescent clinics (*22, 41*). In other areas, buildings or mobile vans provide services to adolescents only. The best known model of a multiservice center that provides a wide variety of services to adolescents only is The Door in New York. The Door offers many types of medical care including contraceptives, venereal disease testing, pregnancy testing, and abortion referrals; and a wide range of other services such as education, recreation, and vocational training. For reasons similar to those mentioned above, and because of the special problems of this age group, specialists in adolescent medicine, including physicians, nurses, and social workers may be needed to staff such facilities.

Dental Services

Dental services must be an integral part of a health maintenance regime. Adolescents should be examined by a dental professional twice a year and routine maintenance procedures such as cleaning and topical fluoride applications should be conducted, along with instruction in brushing and flossing. Restorative care such as filling decayed teeth or replacing missing ones should be performed as needed. Given the magnitude of the dental problems reported in most studies, much adolescent dental treatment will involve treatment of conditions of long duration as well as the maintenance of a healthy mouth.

The extent of dental neglect among adolescents is surprising considering their concern with their appearance. Undoubtedly one reason is the shortage of dentists, particularly in areas with high concentrations of low-income people such as inner city and rural areas. Other factors might be the cost of such treatment (frequently not covered by insurance or Medicaid), fear of pain, and a feeling of hopelessness in maintaining one's teeth in good condition or keeping them at all. Often neither parents nor adolescents realize the importance of dental care, and when money is scarce, such care is neglected.

Some adolescents need dental care of greater magnitude: bridges, periodontic treatments, and particularly orthodontics. These forms of treatment, as with much dental care, are extremely income-related. While many adolescents from middle- or high-income families endure, and hopefully benefit from treatment of malocclusion and other similar conditions, few low-income adolescents do. It is unfortunate that orthodontics frequently is viewed as a cosmetic or optional procedure. Its role in preventing musculoskeletal, digestive, and other dental problems is overlooked. Nor should the importance of a normal appearing face be

underestimated. No adolescent should be forced to face his peers or the world of work with missing anterior or premolar teeth, a pronounced overbite or underbite, or similar disfigurations that are amenable to treatment. The long-term emotional and occupational consequences are potentially more costly than treatment.

In the dental area the need for specialized facilities and personnel seems less urgent than in the medical one. Adolescents generally do not want to be treated in facilities designed for children and may not physically fit in them, but there appears to be no strong objection to treatment in adult facilities. Special adolescent personnel are not advocated, although dentists and other dental personnel whose practices contain large numbers of adolescents should be cognizant of the emotional and psychological needs of their patients. Postgraduate programs in orthodontics and pedodontics already address these issues.

Other Health Services

Certain specialized services may not be needed by all adolescents but should be available to those who need them. They include emergency services, fertility-related services, and services for emotional and psychological problems.

Emergency Services

The incidence of trauma among adolescents as well as emergencies associated with drug use suggest that emergency treatment at one time or another is needed by many adolescents. The trauma may be due to motor vehicle, bicycling, or skateboard accidents; to firearms or other weapons; to suicide attempts by wrist slashing, falls, guns, or ingestion; or to participation in athletics. Overdoses of a variety of mood-altering drugs may also require emergency intervention.

These types of treatment do not need specialized facilities. A well-organized hospital emergency room should be able to manage them. But if adolescent patients are seen in significant numbers, the medical and nursing staff should be knowledgeable about their emotional and psychological needs. Consideration of adolescents' desire for privacy, their ambivalent relationships with their parents, their dependence on peer support, and their anxieties regarding bodily image will make them better able to respond positively to treatment.

Adolescents may use a variety of crisis centers. The personnel in such facilities, including peer counselors, should receive adequate training.

Fertility-Related Services

Although some adolescents will opt for abstinence and others successfully manage active sexual lives without assistance, most will need counseling and services. Adolescents should be able to discuss their feelings about sexual activity, its initiation, continuation, frequency, and protection from pregnancy and venereal disease with individuals knowl-

edgeable in these areas. This may be a family physician or pediatrician (*42*), a health center or school nurse, or a school teacher or counselor. Not all of these individuals feel comfortable in this activity and their discomfort is conveyed to the adolescent. Professionals who deal with adolescents in many capacities, from guidance counselor to swimming coach, need specialized training in dealing with fertility-related issues. If they believe they cannot accept responsibility in this area, at least they should know where to refer adolescents who need such help. Family planning clinics usually have personnel with adequate preparation for this activity. The needs of adolescent males should not be ignored and male counselors should be made available.

For that increasing percentage of adolescents who choose to become sexually active, easy access to contraceptive devices is an urgent need. Although condoms now can be purchased in many supermarkets and drug stores, some adolescent boys and probably most adolescent girls are embarrassed to show their purchase to a cashier, who may also be an adolescent or neighbor. Other countries make condoms available through dispensing machines in schools and other places where adolescents congregate. Many advocate a similar practice for this country.

While some methods of female contraception are available in markets without prescription, female adolescents for whom the diaphragm, pill, or intrauterine device are appropriate must have available medically based facilities. Physicians in private practice or in general adolescent medical facilities will provide these materials to some adolescents, but many youths will turn to specialized family planning programs in health departments, Planned Parenthood affiliates, and hospitals. This is another service in which adolescents may have to be treated separately. Some adolescents will be reluctant to use a family planning service frequented by older women, out of embarrassment or fear of disclosure. Therefore separate times should be set aside for adolescent patients, making certain they do not conflict with school attendance. Judgmental attitudes on the part of personnel serving adolescents may also lead to nonutilization. Only those who feel comfortable with the reality of adolescent sexuality should staff family planning services catering to adolescents. Finally, State laws limiting the prescription of contraceptive devices to minors or requiring parental consent should be eliminated. While adolescents can benefit from the advice and support of parents, and providers of fertility-related services should encourage parental involvement, research suggests that a substantial number of teenagers would not seek such services if they were required to inform their parents (*43*). Transportation, language, and financial barriers also need consideration and elimination, if possible.

Services for Emotional or Psychological Problems

During their transit through the difficult years of adolescence, many basically healthy youths will exhibit signs of emotional disturbance or psychological maladjustment. Rapid intervention and short-term therapy may prevent most of these conditions from becoming severe or chronic. A range of services should be available to assist adolescents with these types

of problems. Hotlines staffed by peers or adult counselors trained to respond to adolescent problems are one essential component. Drop-in centers staffed by peers or adults are another. Both will deal primarily with crisis situations.

Some adolescents, however, will need short-term therapy to deal with their problems. Since few families have the financial resources to pay for private care and many adolescents may be reluctant to seek care if it means dependence on parents or making parents aware of their problems, specialized publicly funded facilities probably are needed. These may be in community mental health centers, youth guidance clinics, community health centers, or private agencies. This type of service in particular needs personnel—psychiatrists, psychologists, social workers, and psychiatric nurses—with specialized adolescent training.

HEALTH SERVICES FOR ADOLESCENT POPULATIONS WITH SPECIAL NEEDS

All of the services described in the preceding pages are either needed by all adolescents or should be available to all adolescents who need them. The following sections will focus on services needed by subpopulations of adolescents whose special needs are a result of special health problems or residence outside of the family home, often with the State or an agency assuming parental responsibilities.

Services for Pregnant Adolescents

With over 200,000 females 12–17 years of age delivering every year and an almost equal number becoming pregnant but not carrying to term because of miscarriage or induced abortion, services for pregnant adolescents and young parents are crucial.

Pregnancy testing should be an important component of any adolescent health service. Testing should be easy to obtain, physically, financially, and psychologically, since it is imperative that prenatal care or an abortion be sought as early as possible.

Once the pregnancy has been confirmed the adolescent needs assistance to enable her to make a decision about its outcome: to carry to term and raise the infant, to carry to term and release for adoption, or to abort. She should have available counseling about the advantages and disadvantages of each of these alternatives.

Should her decision be to abort, this service should be open to her. Two obstacles currently add to the many psychological problems, including fear and guilt, associated with this decision: the controversial requirement for parental notification or consent in many States (*43*), and financing. The Hyde Amendment makes it impossible to use Federal Medicaid funds for abortions and many States have similar restrictive policies. Although many individuals find abortion an unacceptable method of family planning, there are some medical and psychiatric circumstances under which it may be the best alternative. More importantly, social policy for

the financially advantaged should not be different from social policy for the financially *dis*advantaged—which is clearly the present situation.

Should the adolescent decide to carry to term and release for adoption, she should be referred to an agency that handles this procedure. Adoption is probably as difficult a decision for a young person as abortion, and in both cases counseling should be available so that the adolescent need not carry a burden of guilt and misgiving for many years.

For the adolescents who choose parenthood, whether single or married, a wide spectrum of medical, educational, and social services will be required during both the prenatal and the postpartum period.[10] Most adolescents probably will seek medical attention in the office of an obstetrician or general practitioner. Payment for such care may be a problem if the family does not have adequate financial resources or an insurance policy that covers maternity services for dependents, or if the family has rejected the adolescent. Unfortunately, in many States Medicaid will not pay for prenatal care and delivery for young women who are not on welfare, even though the mother and child will be eligible for Aid to Dependent Children once the child is born. In other States the reimbursement levels are so low that many physicians will not accept Medicaid patients. Both conditions should be corrected and adequate third-party payment for prenatal care should generally be encouraged.

In some communities there are several alternatives to the private physician's office, including hospital ambulatory care centers, health department clinics, Maternity and Infant Care Projects, and community health centers. Such facilities should operate special sessions exclusively for adolescents under 18. These should be conducted after school hours, and employ only physicians, nurse-midwives, nurses, and other staff, including clerical personnel, who enjoy young people and who are not judgmental. Sufficient time must be allowed for explaining procedures before and after they are done and for sensitive listening to the adolescents' doubts and fears. Educational programs that help the adolescent understand her body's needs and changes during pregnancy, the process of labor and delivery itself, and what she can expect in the immediate postpartum period are essential. These may be offered by the same institution that provides the medical care or they may be offered collaboratively with a school or social agency also involved in serving the pregnant adolescent. Nutritional information and counseling certainly should be part of such an educational program, if low infant birth weights are to be avoided and the child is to be adequately nourished through the first year of life (*45*).

Unfortunately even the best medical program is of little assistance to the pregnant adolescent who does not seek care. Eliminating financial barriers, making facilities easily accessible in terms of time and place, and making them inviting by employing sympathetic personnel are essential steps in reducing the present tragically high rates of late care seeking among adolescents. These activities must be augmented by aggressive outreach. Pregnancy should automatically be suspected when a female

[10] Portions of this section are adapted from a talk delivered by the author at a conference on Adolescent Pregnancy conducted by the University of Pittsburgh Graduate School of Public Health (*44*).

student indicates that she wishes to drop out of school, and questions should be asked discreetly. It should also be suspected when there is a gradual or a sudden increase in absences or in trips to the nurse's office. Youth-serving organizations such as settlement houses and church groups can also play a role in early detection of pregnancy.

For the adolescent who has not completed her education, there is a need for specialized educational services during the prenatal period and often for several months after delivery. These services run the gamut from homebound instruction for the young woman who is physically or emotionally unable to leave home, through specialized schools and special classrooms, to regular classrooms with minor schedule modifications for the young woman who is stable and can benefit from the wealth of resources available in many schools.

Although "mainstreaming" and placing the pregnant adolescent in the "least restrictive environment" that she can tolerate should be the dominant educational policy, specialized schools have advantages. In addition to providing the most suitable setting for those with physical, emotional, or academic problems, such schools can also provide a variety of nontraditional services that can make life easier for the pregnant adolescent. For example, many specialized schools provide nutritionally adequate breakfasts and lunches; some run prenatal care clinics on their premises; others organize group counseling sessions that allow the young women to gain insight into why they became pregnant, their relationships with their families, boyfriends, and peers, and what the future may hold. Special educational classes may be offered or required in areas such as family planning, child care, household management, or infant development.

Vocational counseling is an essential educational service during the prenatal period. While it is unrealistic to expect a young mother with a preschool child to support herself, the prenatal period is not too soon to begin considering how the mother will support herself and her child when the child spends 5 to 7 hours a day in school.

In addition to medical care and education, pregnant adolescents need social services. Specialized types of counseling are needed on abortion, adoption, medical care, housing, and educational and vocational choices. More intensive social services are needed by a small fraction of adolescents for whom the pregnancy is pathological; that is, a manifestation of a severe psychological disorder, a reaction to an unhealthy, conflictive family situation, or the result of an inability to deal with peers. These young women need casework or assistance from a psychologist or psychiatrist if they are to make wise decisions during the pregnancy; and if they choose parenthood, to provide a healthy environment for the new baby. Agency staff need to be alert to the signs and signals of the pregnant adolescent who needs psychological treatment.

Many families will also require casework services, brief or extended, in order to be able to provide support to their daughters. Since the adolescent's family is going to be around long after the adolescent ceases her agency contact, helping to solve the family's psychological problems is as urgent as helping to solve the adolescent's. Social services may be made available to the male partner depending on the female's wishes and the

agency's resources. The needs of younger female siblings should also be considered if additional adolescent pregnancies are to be avoided.

Services to the pregnant adolescent should not terminate at delivery or in the weeks or months following. The 2–3 years following the infant's birth may be crucial to the mother and her child's life. A program of home visiting during the postpartum period by public health nurses, outreach workers, or social workers will assist the young mother in maintaining a contraceptive regime, completing her education and vocational preparation, and caring for her health and that of her infant. The availability of infant day care may prove a crucial factor in her ability to prepare for the future.

Services for the Emotionally Disturbed or Mentally Ill

In a previous section services for adolescents in crisis or with transient emotional problems were reviewed. Unfortunately, some adolescents have more serious and enduring problems that require long-term therapy on an outpatient basis, a medication regime, specialized educational programs, and even hospitalization. Special adolescent concerns in outpatient therapy have already been discussed. The situation is paralleled in an inpatient setting but is not as easy to rectify.

Adolescents need a range of residential services including therapeutically oriented residential care centers and schools, less intensive long-term residential schools or camps, group homes, and halfway houses, as well as intensive, short-term inpatient facilities. It is generally agreed that adolescents should not be placed on children's wards nor on adult wards in psychiatric facilities. In the former they may victimize or frighten younger children, while in the latter they may be frightened or victimized or do violence to weaker patients. Placing many emotionally disturbed or mentally ill adolescents on the same ward, however, often leads to violent behavior; therefore some institutions choose to disaggregate the adolescents to protect the adolescents and the institution, despite the fact that this may not maximize therapeutic effectiveness. A wiser solution would be all-adolescent wards with limited numbers on each ward and a high personnel-patient ratio.

In addition to psychiatric services, educational and recreational services should be provided that are appropriate to the adolescent's age, developmental stage, and previous educational attainment. Public Law 94–142 and various State laws and court decisions regarding the right to education and the least restrictive environment, if properly enforced, should prod more institutions to offer these nonmedical but essential services. Nor should traditional medical services be ignored; provisions should be made for the prevention, diagnosis, and treatment of medical conditions in all residential facilities.

Many areas suffer from a lack of facilities for emotionally disturbed or mentally ill youths and such children either remain on the streets, a danger to themselves and others, or are placed in less therapeutically oriented institutions such as jails or training schools. Although inpatient psychiat-

ric facilities should not be allowed to become "dumping grounds" for the deviants who are not mentally ill, they should be available in sufficient number to care for those with serious psychiatric problems.

Two subgroups within this population deserve special attention: the agressive, acting-out, occasionally violent adolescent and the substance abuser. Although infrequently mentally ill, such youths are emotionally disturbed. Some communities have developed a variety of specialized programs for the first group. These include specialized schools (*46*), frequently with behavior modification programs (*47*), specialized counseling, and other services. Unfortunately in many areas these adolescents are bounced back and forth between parents, courts, police, welfare departments, schools, and other agencies, none of whom appear able to manage them. Eventually they are sent to institutions or die violent deaths. The need for secure facilities for some of these youths is hotly debated because of both civil rights issues and costs. Probably a few adolescents may need such care, but a range of alternative services to avoid such facilities clearly is more desirable.

Adolescent alcohol abuse may range from infrequent binge drinking to serious problem drinking. Intervention is required when alcohol interferes with academic work, operation of a motor vehicle, relations with peers or parents, or causes other problems. Services may include individual or group counseling by peers or adults, individual or group psychotherapy, and emergency treatment.

Drug use in adolescents, although more frowned upon by society than drinking, less frequently leads to adult addiction (*15*). Nevertheless, it can cause significant problems in the adolescent years. Again, a range of services is needed: counseling, psychotherapy, emergency treatment, and for a few, residential treatment.

Services for Athletes

Large numbers of adolescents engage in strenuous athletics and, while this was once an almost exclusively male arena, females are entering it in increasing numbers. Special attention needs to be paid to the prevention and treatment of sports-related injuries. Periodic examinations of athletes is one component of a sports medicine program. Others include adequate preparation for competitive sports; prohibition of participation in athletic activities inappropriate for physical and emotional developmental stage; availability of personnel trained to deal with emergencies in contact sports and in other activities with a high risk factor such as skiing or riding; prompt treatment of injuries; and strong rehabilitation programs (*48*).

Services for Adolescents No Longer in Parental Homes

A sizable number of adolescents no longer reside with their parents by their own choice, their parents' wishes, or the decision of a public or

private agency. Providing health services to these youths is an important issue and one often overlooked.

Runaways and Street Children

Health-related programs for youths who have run away from home or have been "thrown out," for young prostitutes, and for other street children are a particular challenge to the health professional. Their health problems frequently are myriad, ranging from acne and colds to pregnancies (*49*), venereal disease, and drug addiction, and yet they are the least likely to seek assistance because of fear of prosecution, resistance to being returned home, and a distrust of adults. When a health-related crisis occurs, they seek help in the least personal facilities where their desire to remain anonymous may be granted: hospital emergency rooms and outpatient clinics. Such facilities seldom review or serve the total needs of the adolescent and are even less likely to followup to determine compliance with recommendations. Some cities have developed alternative facilities that, while sensitive to the street youth's desire for anonymity, nevertheless are able to develop a sense of trust that enables them to provide help beyond the immediate crisis situation and thus to keep at least some percentage of their clients in care long enough to ameliorate their physical health problems, although not usually their psychological ones.

Most large urban centers probably need specialized programs for these youths: outreach workers to frequent the streets and other areas where street youths congregate and let them know of the availability of services, ambulatory care centers that are easily available and provide assistance with a minimum of personal questions, and residential facilities for those needing care or protection.

Residents of Institutions

When a public agency assumes the responsibilities of a parent, as it must in most cases when an adolescent is placed in a detention center, jail, reformatory, training school, school for the retarded, or other residential facility, the maintenance and even the improvement of the youth's health should be among its functions. However, studies of institutionalized populations frequently reveal deplorable environmental conditions and medical services of inferior quality. This is particularly unfortunate because such institutions usually draw disproportionately from the economically deprived segments of the population whose health most often is substandard before institutionalization. The service needs of this population may be greater than those of most adolescents, and special attention may need to be paid to psychological and contraception services. A complete medical assessment upon institutionalization should be required along with treatment for all conditions discovered. The unique problem is how to deliver the services. Institutionalized adolescents cannot reach the services they need without assistance and may be

unwilling to use community facilities if they are stigmatized as coming from an institution. Thus, in most cases, the services must be brought to them. Even so, they may be reluctant to use such services effectively since any adult within the institution may be seen as the enemy. To be effective, health personnel must separate themselves from other institutional personnel and attempt to convince adolescents that medical confidentiality will be maintained despite the setting. The maintenance of high-quality care in an institution that frequently pays poorly and is isolated from professional review is often very difficult.

Adolescents in Foster Care or Group Homes

In this situation as well, the agency that assumes responsibility for placing adolescents should assume responsibility for their health needs. Unfortunately this is not always the case. Since youths in these settings usually are not physically restricted, they and those responsible for them can seek care from the usual community facilities. Other needs and problems, however, frequently take precedence especially since a prior medical history may not be available and adolescents may be reluctant to discuss their problems. Also, the funds provided for the care of the adolescent may not be sufficient to obtain necessary medical care. These situations require careful monitoring by the agency responsible for the child's placement. Before placement a complete health assessment including physical, psychological, and social components should be mandated. Periodic checks to determine that essential care is received and that the child is adjusting well should be made during the placement period. Counseling and other therapies should be available if needed. The cooperation of the foster parent or the director of the group home and the adolescent should be encouraged, but this does not obviate the need for agency monitoring of compliance to promote the child's physical and mental health. In addition, the adolescent's psychological well-being will undoubtedly be improved if plans are made and implemented for their long-term disposition—with the adolescent participating in the planning.

Hospitalized Adolescents

Although rates of hospitalization are not high among adolescents, youths hospitalized for more than a few days of inpatient treatment for medical or surgical conditions of acute or chronic nature require specialized services. As increasing numbers of children with chronic illnesses or handicapping conditions live into adolescence, more and better adolescent units are needed. Adolescent wards are recommended rather than pediatric or adult services. Such wards can be staffed by personnel specifically trained in adolescent medicine, and they permit the social interaction so essential to adolescent psychological health. Educational and recreational programs are essential if the adolescent's development is to continue during his or her period of hospitalization. A special adolescent ward makes such programming easier.

PROBLEMS IN THE PROVISION OF SERVICES

Many of the problems that have been faced in providing services to adolescents and that can be anticipated in the future have been reviewed in early sections. In this section they will be grouped and summarized.

Adolescent Needs Versus Parental Prerogatives

Adolescents do not always receive the services they need because they are reluctant, for a variety of reasons, to seek them themselves. Yet they will no longer allow parents to make these decisions for them. This problem is less crucial in early adolescence but usually increases with age. Shame, fear, and fatalistic or irresponsible attitudes are factors in adolescent avoidance of health services that are difficult to overcome. Another factor, desire for privacy and confidentiality, should be easier to accommodate, although it may conflict with normal parental wishes to know about their children's problems so that they can help them. This problem is further complicated in some States by laws requiring parental consent for treatment of certain medical and emotional conditions, provision of contraceptives, abortions, and other services (*50*). This problem will not be resolved easily or quickly (*51*).

One possible solution is to substitute professional judgment for legal requirements. Physicians, nurses, social workers, and others would be instructed to urge adolescents to inform their parents of their health needs and the services they were requesting. If they refused, and the professional believed that they had good reason for refusing or that their health might be more jeopardized by informing the parent and thereby possibly causing the youths to avoid care, the professional would have the option of providing services without parental notification or permission. Such a step obviously should not be taken without consideration of all factors, and unobtrusive assessments of the family situation by social workers or outreach personnel might be needed.

Financing

The field of adolescent health suffers from the general underfinancing of services for nonvoting and nonvocal groups. The general public's perception of the adolescent years as healthy ones leads to their receiving a small share of even the funds available for children; for example, adolescents are often the last group sought in Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) programs.

But there is another financing problem unique to the adolescent group, their dependence on parental financing even when they seek care independently. Some adolescents are deterred from seeking care because the providers will request their parents' insurance or Medicaid card as assurance of payment. Later, in most cases, the parents will be notified

that a specific type of care was received. Even when adolescents are issued their own cards, notification usually follows. This makes it impossible to conceal the receipt of service from the family. This is another situation where professional judgment might be substituted for automatic procedures. It should be possible for an adolescent to request that notification not be sent, and to have his or her wishes respected if the attending professional feels that the request is reasonable.

The problem remains of obtaining services if one is poor and not covered by private insurance or Medicaid, or obtaining health promotion, disease prevention or detection, or other services that are often not covered by private plans or Medicaid. This problem is not unique to adolescents or even to children and pregnant women, but rather covers both sexes and the entire age span. It needs to be addressed through a comprehensive national health plan that does not exclude certain groups or certain services.

Payment for health assessments performed on adolescents has problems beyond the fact that most third-party payers do not cover this type of preventive service. An adequate assessment of an adolescent, such as has been described in earlier sections, can easily take 30 minutes or more. This is considerably more time than the pediatrician devotes to periodic assessments of infants or young children and may even be longer than an internist spends with an older patient. Reimbursement for adolescent visits at the same rate as visits of younger or older patients, therefore, will not encourage physicians to perform the assessment tasks. A fee related to the investment of time and psychic energy is needed.

Organization of Services

Services for adolescents can be provided in traditional settings: physicians' offices, community health centers, hospitals, and others. Frequently, however, in a sensitive area such as reproductive health, special hours must be set aside to segregate the adolescents from others, special wards must be organized, and specially trained personnel must be employed. Because of the problems involved in making such arrangements, and the increased costs often associated with them, these arrangements are often controversial.

Nontraditional settings may be equally controversial. The use of mobile vans or storefronts may cause concern to personnel accustomed to more traditional medical settings. Similarly, the inclusion of health-related services in settings usually associated with recreational or other functions, such as settlement houses, may be uncomfortable for personnel used to the authoritative structure of medical settings and the back-up services such settings can provide. Such nontraditional settings may also be associated with additional expenses because they will not permit the economies of scale associated with traditional settings. In addition, special hours, special facilities, and special personnel may be viewed by the general public, and even by health professionals as "molly coddling," giving in to the demands of adolescents, spoiling them. These attitudes may surface particularly when the services are needed in connection with

a deviant, socially disapproved activity: sexual intercourse, drug or alcohol abuse, or running away.

Another organizational issue is determining the most cost effective way to deliver health services to adolescents. One model is an adolescent facility that provides a wide range of services: care for medical conditions, contraceptive services, and programs for the emotionally disturbed, to name a few. Alternatively, a specialized service can be made available to a wide spectrum of age groups, among them adolescents. A Planned Parenthood center would be an example of such a model, providing contraceptive services to women in all the childbearing ages, with adolescents being served at special times.

The role of the schools in the promotion of child health, including that of adolescents is of particular interest currently because of the new attention being devoted to health education, and the experimental programs supported by the Robert Wood Johnson Foundation. The potential role of the schools in health promotion through a variety of educational programs, some of them in controversial areas, already has been discussed. In some of the experimental programs school nurse practitioners are doing health assessments and, in conjunction with school physicians, providing treatment or referring adolescents for care elsewhere. Since a very large proportion of the adolescent population is in school, this would appear to be a very effective way of providing care. Resistance can be anticipated from the medical profession, which may see an expanded school health program as competing with private practice, and from school boards and public officials who may think such a program is an expensive frill to be eliminated in times of financial constraint. In addition, the adolescent students themselves may believe, frequently correctly, that school records, even medical records, are open to teachers, administrators, and parents; and that school nurses owe their allegiance to the schools rather than to the patient. Both of these suspicions would lead to the conclusion that privacy and confidentiality are impossible in the school setting and that problems of that nature should be taken elsewhere. Before school nurse practitioner or other school-based health programs targeted at adolescents can be effective, these issues will have to be faced and solved through regulations and the development of trust.

Personnel

Throughout these sections there has been continued reference to the need for personnel specially trained to understand and treat the problems of adolescents. This recommendation has its own problems. *The Future of Pediatric Education,* a report by the Task Force on Pediatric Education (*52*) listed adolescent medicine as one of the most significant areas in which the educational content of many residency programs was inadequate. The report stated that more than 17 percent of patients seen by pediatricians were 13 years of age or older and that pediatricians were now the primary care physicians for a quarter of all adolescents. It also noted that almost 70 percent of recent graduates of pediatric residency

programs voted their training in this area as insufficient. Expansion of the adolescent component of pediatric residencies is strongly advocated in the report (*53*).

Other professionals such as midlevel medical practitioners, psychologists, social workers, nurses, and others also need training in the adolescent field. The Office for Maternal and Child Health of the Public Health Service supports nine adolescent interdisciplinary training projects at institutions of higher learning.

If facilities for the treatment of adolescent health needs are to be expanded, a much larger pool of trained professionals will be needed. This will require a commitment from the health professions and the Federal Government.

Controversy Surrounding Health Education

Health education particularly in sexual and drug abuse-related areas may be very controversial. The effectiveness of many traditional methods has not been proved and the results of newer methods are just beginning to be reported.

Moreover, parents and others fear that the provision of information in these areas may in itself lead to experimentation. There is some evidence that this is true in the drug field and clearly new methods must be found that avoid this danger. In the area of sex education, studies have shown that contraceptive use may follow the initiation of sexual activity by a year or more. It seems unlikely, therefore, that information about contraceptives can cause sexual experimentation.

In this section on problems in the provision of services, attention has been focused on problems unique to the adolescent years. This should not be interpreted as signifying that adolescents are exempt from the problems that plague all health services for children: inadequate financing, discrimination against the poor and minorities, unequal distribution of services leading to inadequate services in rural areas and some inner cities, fragmentation, and the absence of a system that assumes responsibility for child health or a policy that suggests that this is important.

CONCLUSION

The health-related needs of the adolescent are receiving increasing attention from the Federal Government and the general public. This new prominence can provide an opportunity to take a fresh look at this population and its very special needs. It is hoped that what will emerge is a program devoted to an entire range of services for adolescents rather than a series of services targeted at individual problems.

REFERENCES

(*1*) President's Science Advisory Committee, Panel on Youth. *Youth: Transition to Adulthood.* Chicago: University of Chicago Press, 1974.

(2) Tanner, J. M. *Growth at Adolescence*, 2nd ed. Oxford, England: Blackwell Scientific Publications, 1962.
(3) Department of Health, Education, and Welfare, National Center for Health Statistics, Division of Health Examination Statistics. Data from the Health Examination Survey.
(4) Erikson, E. *Childhood and Society*. New York: W. W. Norton and Company, 1950.
(5) U.S. Bureau of the Census. "Estimates of the Population of the United States by Age, Sex and Race, 1976 to 1978." *Current Population Reports*, Series P-25, No. 800. Washington, D.C.: U.S. Government Printing Office, 1979.
(6) U.S. Bureau of the Census. "General Population Characteristics, U.S. Summary." *Census of Population: 1970*. PC(1)-B1. Washington, D.C.: U.S. Government Printing Office, 1972.
(7) U.S. Bureau of the Census. "Projections of the Population of the United States: 1977–2000." *Current Population Reports*, Series P-25, No. 704. Washington, D.C.: U.S. Government Printing Office, 1977.
(8) Division of Health Interview Statistics, National Center for Health Statistics. Data from the Health Interview Survey, 1975–1976.
(9) U.S. Bureau of the Census. "Characteristics of the Population Below the Poverty Level: 1977." *Current Population Reports*, Series P-60, No. 119. Washington, D.C.: U.S. Government Printing Office, 1979.
(10) Baldwin, W. H. "Adolescent Pregnancy and Childbearing—Growing Concerns for Americans." *Population Bulletin* 31: 1–37, January 1980. Updated reprint.
(11) Public Health Service. *Health, United States, 1979*. DHEW Publication No. (PHS) 80-1232. Hyattsville, Md., 1980.
(12) Kovar, M. G. "Adolescent Americans: What of Their Medical and Health Problems?" *The Sciences* 19(4): 18–21, April 1979.
(13) Kovar, M. G. "Some Indicators of Health-Related Behavior Among Adolescents in the United States." *Public Health Reports* 94(2): 109–118, March-April, 1979.
(14) National Center for Health Statistics. "Examination and Health History Findings Among Children and Youths, 6–17 Years, United States." *Vital and Health Statistics*, Series 11, No. 129. DHEW Publication No. (HRA) 74–1611. Washington, D.C.: U.S. Government Printing Office, 1973.
(15) Kovar, M. G. "Adolescent Health Status and Health-Related Behavior." *Adolescent Behavior and Health: A Conference Summary*. Washington, D.C.: National Academy of Sciences, 1978.
(16) National Center for Health Statistics. "Hearing Sensitivity and Related Medical Findings Among Youths 12–17 Years, United States." *Vital and Health Statistics*, Series 11, No. 154. DHEW Publication No. (HRA) 76–1636. Washington, D.C.: U.S. Government Printing Office, 1975.
(17) National Center for Health Statistics. "Basic Data on Dental Examination Findings of Persons 1–74 Years, United States, 1971–1974." *Vital and Health Statistics*, Series 11, No. 214. DHEW Publication No. (PHS) 79–1662. Hyattsville, Md., May 1979.
(18) National Center for Health Statistics. "Skin Conditions and Related Need for Medical Care Among Persons 1–74 Years, United States, 1971–1974." *Vital and Health Statistics*, Series 11, No. 212. DHEW Publication No. (PHS) 79-1660. Hyattsville, Md.: U.S. Government Printing Office, 1978.
(19) Committee on Adolescence. "Teenage Suicide." *Pediatrics* 66: 144–146, July 1980.
(20) President's Commission on Mental Health. *Task Force Reports Submitted to the President's Commission on Mental Health*, Vol. III, Appendix. Washington, D.C.: U.S. Government Printing Office, 1978.
(21) Brunswick, A. F. and E. Josephson. "Adolescent Health in Harlem." *American Journal of Public Health* 62: supplement, October 1972.
(22) Schonberg, S. K. and M. I. Cohen. "Health Needs of the Adolescent." *Paediatrician* 8: supplement, 131–140, 1979.
(23) Brown, S. S. "The Health Needs of Adolescents." In *Healthy People—The Surgeon General's Report on Health Promotion and Disease Prevention—Background Papers*. Washington, D.C.: U.S. Government Printing Office, 1979.
(24) Green, D. E. *Teenage Smoking—Immediate and Long-Term Patterns*. Washington, D.C.: U.S. Government Printing Office, November 1979.
(25) Johnston, L. D., J. G. Bachman, and P. M. O'Malley. *1979 Highlights—Drugs and the Nation's High School Students—Five Year National Trends*. DHEW Publication No. (ADM) 80-930. Washington, D.C.: U.S. Government Printing Office, 1979.
(26) National Institute on Drug Abuse, Press Office. "Drug Abuse Statistics 1979—Preliminary Population Projections." *NIDA Capsules*. Rockville, Md., June 1980. Derived from The National Survey on Drug Abuse: Main Findings, 1979.
(27) Zelnik, M. and J. F. Kantner. "Sexual and Contraceptive Experience of Young Unmarried Women in the United States, 1976 and 1971." *Family Planning Perspectives* 9: 55–71, March/April 1977.

(28) Center for Disease Control. "Gonorrhea—United States." *Morbidity and Mortality Weekly Report* 28: 533–534, November 16, 1979.
(29) National Center for Health Statistics. "Caloric and Selected Nutrient Values for Persons 1–74 Years of Age: First Health and Nutrition Examination Survey, United States, 1971–1974." *Vital and Health Statistics*, Series 11, No. 209. DHEW Publication No. (PHS) 79-1657. Hyattsville, Md., June 1979.
(30) Division of Health Interview Statistics, National Center for Health Statistics. Data from the Health Interview Survey, 1974.
(31) Dryfoos, J. G. and T. Heisler. "Contraceptive Services for Adolescents: An Overview." *Family Planning Perspectives* 10: 223–233, July/August 1978.
(32) Parcel, G. S., P. R. Nader, and M. P. Meyer. "Adolescent Health Concerns, Problems, and Patterns of Utilization in a Triethnic Urban Population." *Pediatrics* 60: 157–164, August 1977.
(33) Urban and Rural Systems Associates. *Improving Family Planning Services for Teenagers*. San Francisco, Calif., June 1976.
(34) Brunswick, A. F., J. M. Boyle, and C. Tarica. "Who Sees the Doctor? A Study of Urban Black Adolescents." *Social Science and Medicine* 13A: 45–56, 1979.
(35) McAlister, A., C. Perry, J. Killen, L. A. Slinkard, and N. Maccoby. "Pilot Study of Smoking, Alcohol and Drug Abuse Prevention." *American Journal of Public Health* 70: 719–721, July 1980.
(36) Perry, C., J. Killen, M. Telch, L. A. Slinkard, and B. G. Danaher. "Modifying Smoking Behavior of Teenagers: A School-Based Intervention." *American Journal of Public Health* 70: 722–725, July 1980.
(37) Gilchrist, L. D., S. P. Schinke, and B. J. Blythe. "Primary Prevention Services for Children and Youth." *Children and Youth Services Review* 1: 379–391, 1979.
(38) Institute of Medicine. *Preventive Services for the Well Population*. Washington, D.C.: National Academy of Sciences, 1978.
(39) Haggerty, R. J. "Adolescence." In M. Green and R. J. Haggerty, eds., *Ambulatory Pediatrics II—Personal Health Care of Children in the Office*. Philadelphia: W. B. Saunders Company, 1977.
(40) Health Care Financing Administration. *A Guide to Adolescent Health Care—EPSDT*. U.S. Department of Health, Education, and Welfare (HCFA-80-0100). Undated.
(41) McAnarney, E. R. and S. B. Friedman. "Experience with an Adolescent Health Care Program." *Public Health Reports* 90: 412–416, October 1975.
(42) Greydanus, D. E. and E. R. McAnarney. "Contraception in the Adolescent: Current Concepts for the Pediatrician." *Pediatrics* 65: 1–12, January 1980.
(43) Torres, A. "Telling Parents About Adolescents' Use of Family Planning and Abortion Services: Clinic Policy and Teenage Behavior." *Family Planning Perspectives*, in press.
(44) Klerman, L. V. "Supportive Services for the Pregnant Adolescent" in *Adolescent Pregnancy: New Approaches to Services*. Proceedings of a symposium, University of Pittsburgh, September 1979.
(45) Task Force on Adolescent Pregnancy. *Adolescent Perinatal Health—A Guidebook for Services*. Chicago, Ill.: American College of Obstetricians and Gynecologists, 1979.
(46) Hobbs, N. *Helping Disturbed Children: Psychological and Ecological Strategies, II; Project Re-ED, Twenty Years Later*. Center for the Study of Families and Children, Vanderbilt University, Nashville, Tenn., November 1979.
(47) Kennedy, J., J. B. Mitchell, L. V. Klerman, and A. Murray. "A Day School Approach to Aggressive Adolescents." *Child Welfare* 55: 712–724, December 1976.
(48) Committee on Pediatric Aspects of Physical Fitness, Recreation, and Sports. "Injuries to Young Athletes." *Pediatrics* 65: 649–650, March 1980.
(49) Perlman, S. B. "Pregnancy and Parenting Among Runaway Girls." *Journal of Family Issues* 1: 262–273, June 1980.
(50) Steinfels, M. O. "Ethical and Legal Issues in Teenage Pregnancies." In T. Ooms, ed., *Teenage Pregnancy in a Family Context: Implications for Policy*. Philadelphia: Temple University Press, in press.
(51) Hoffman, Adell. "A Rational Policy Toward Consent and Confidentiality in Adolescent Health Care." *Journal of Adolescent Health Care* 1(1), 1980.
(52) The Task Force on Pediatric Education. *The Future of Pediatric Education*. Evanston, Ill., 1978.
(53) Cohen, M. I. "Importance, Implementation and Impact of the Adolescent Medicine Components of the Report of the Task Force on Pediatric Education." Mimeographed paper available from Dr. Cohen, Montefiore Hospital, Bronx, N.Y.

HEALTH CARE FOR CHRONICALLY DISABLED CHILDREN AND THEIR FAMILIES

by
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INTRODUCTION

The handicapped children of this country constitute a minority group whose needs the Nation's health care system has neglected. To meet handicapped children's requirements for health care—broadly defined—requires medical, psychological, social, and educational services. Shortcomings in any one of these areas—such as the well documented inadequacies in the medical care delivery system for children (*1, 2, 3*)—particularly hinder children with chronic disorders. Handicapped children also suffer from the inability of the service agencies to coordinate their efforts or to work closely with families in setting priorities and developing plans for care. Furthermore, the costs of care for handicapped children can be very high (*4*), and family assistance from public and private programs is inconsistent and generally inadequate (*5*). Finally, both health care professionals and society in general have systematically, although unintentionally, discriminated against these children and their families (*6*).

The number of handicapped children is large:

- 7.2–10.8 million American children (10–15 percent of all children under 18) have some type of chronic impairment
- 1–2.8 million children have conditions sufficiently severe to limit their daily activities significantly

The burdens on these children and their families can be enormous: the continuing high costs for health care services not covered by public or private insurance; the physical problems of nagging pain or continued discomfort; the emotional stress of feeling "different," dependent, and unworthy; the pervasive social stigma; and the frustration of finding no consistent network of support.

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Recently, a greater recognition of the civil rights of handicapped individuals and an emphasis on "holistic health" have brought many positive changes for these children and their families, including new legislation (The Education for All Handicapped Children Act of 1975, P.L. 94–142), such new programs as Direction Service Centers of the National Association of State Directors of Special Education, 1979, and efforts to gain new knowledge (7). However, these developments are still in their infancy and will need nurturing.

Definitions

In this paper, a chronically disabling or handicapping condition is defined as any mental or physical disorder that continually or repeatedly threatens to disrupt normal development in the physical, intellectual, emotional, or social sphere. Many of the conditions subsumed under this definition are listed (7) in Appendix A. Based on this typology, the term "chronic disability" includes such conditions as mental retardation and severe psychiatric disturbances,[1] as well as such physical diseases as leukemia, sickle cell anemia, and muscular dystrophy.

The terms "handicapped" and "disabled" are used interchangeably. Both, however, are distinguished from "illness," which refers to an ongoing disease process, such as diabetes. The terms handicapped and disabled refer to the *effects* of a disease process, birth defect (e.g., a cleft lip), or accident (e.g., loss of limb). Chronic "conditions" and "disorders" are both used generically, to refer to the full range of chronic health problems. The term "catastrophic condition" denotes a particularly severe, unstable, and costly chronic disorder.

"Medical treatment" includes those activities designed to ameliorate strictly physical conditions—such as the prescription of drugs, surgical procedures, and the fitting of prostheses. "Management of care" refers to a broader range of activities, including those that help children adapt to their conditions and demonstrate a reasonable degree of compliance with medical treatment. "Health care" is a generic term for all activities designed to promote adaptive physical, psychological, or behavioral functioning. Thus, this term includes not only medical care, but also psychological support, proper educational placement, and health promotion and disease prevention programs.

The Context of Chronic Conditions of Childhood

This paper is based on three assumptions concerning the most useful and appropriate contexts in which to consider the chronic conditions of childhood. First, services for handicapped children are largely based on need as perceived by a variety of health care professionals, all of whom are influenced by their training, by political and economic pressures, and

[1] For a discussion of the problem of mental illness in children, see "Reflections on Maternal and Child Health Programs," Chapter VII, in this volume.

by generally accepted attitudes toward handicapped children. Consequently, when new health care needs arise or when needs are newly recognized, the health care system is likely to respond slowly because of entrenched habits and domininant professional interests (*8*). Thus, substantive changes in the health care system for handicapped children are likely to occur only with substantive changes in the habits of health care providers.

An estimated 2.3 percent of all children live in long-term residential institutions (*9,10*); the majority of these children are profoundly mentally retarded, multihandicapped, or severely emotionally disturbed. Because very few children who are mildly mentally retarded, strictly physically ill, or disabled live outside of a family, this paper's second assumption is that a disabled child's family should be actively involved in decisions about treatment and management. Health care services for handicapped children may not even be effective "unless there is greater recognition of the family context in which children live, and through which social programs must operate" (*11*). If a family establishes a supportive and encouraging atmosphere, the disabled child's chances of developing adaptive patterns of living are vastly improved.

The paper's third assumption is that the handicapped child is foremost a growing individual who will move through predictable developmental stages and, like all children, will have to confront certain tasks. Successful adjustment to a chronic disabling condition requires accomplishing these tasks and managing the transition from one to the next despite the limitations imposed by the handicap.

BURDEN OF ILLNESS

Because the Nation's birthrate has been on a slight upswing recently, the number of chronically handicapped children will increase during the next decade. Estimates of the percentage of the childhood population now chronically handicapped vary greatly, depending on the definition of handicap and the source of the information on extent of handicap. No national health survey has included questions that would allow direct estimates of the incidence or prevalence of chronic handicaps. However, several small-scale surveys permit indirect estimates, and some national survey data are available for selected conditions (table 1).

Estimates of the prevalence of chronic physical illness among American children range between 6 and 20 percent of the total population (*12, 13, 14, 15*). Mild and severe mental retardation affects about 3.4 percent of the Nation's children, and the major psychiatric conditions affect perhaps 5 to 15 percent of the population (*16*). Taking into account that multihandicapped children may have been counted more than once, the percentage of chronically handicapped children (including those with severe psychiatric disorders) is estimated to be between 10 and 15 percent of children, a figure that roughly corresponds to the 12 percent used in The Education for All Handicapped Children Act, P.L. 94–142.

Moreover, the extent of the limitations caused by handicapping conditions cannot be assessed readily. As illustrated in table 2, several

TABLE 1. Estimated Rates of Chronic Illness, Based on Selected Surveys (rates per thousand children)

Condition	Low Estimates			High Estimates
Respiratory	22.4 (C)			45.6 (D)
Chronic Bronchitis				38.9 (A2)
Asthma	31.1 (A2)			56.2 (B)
Neurologic	8.5 (D)	15.2 (C)	16.7 (B)	
Musculo-Skeletal	4.0 (D)	5.7 (F)	12.5 (C)	46.1 (B)
Visual	5.5 (A1)	8.0 (D)	9.4 (A3)	12.1 (C)
Hearing	5.1 (C)	7.8 (A1)	8.5 (D)	13.0 (A3)
Speech	4.9 (C)	7.4 (D)	9.0 (A1)	
Cleft Lip–Palate	0.8 (G)	1.4 (F)	1.6 (H)	
Genitourinary	2.7 (C)			5.7 (D)
Congenital Defects	2.8 (D)	8.0 (C)	14.3 (I)	19.7 (G)
Cerebral Palsy			5.0 (K)	
Spina Bifida	0.5 (F)	1.3 (E)		
Muscular Dystrophy	0.3 (J)			
Neural Tube Defects	1.3 (F)	1.4 (G)		
Hematologic	0.6 (C)	1.7 (D)		
Cardiovascular	35.9 (B)			
Heart Defects	10.5 (A4)			
Congenital Defects	1.5 (H)	2.2 (F)	3.2 (G)	
Cystic Fibrosis	1.0 (L)			
Orthopedic	21.0 (A1)			
Diabetes	1.0 (M)			
Autism	0.4 (N)			
Mental Retardation	34.0 (N)			
Severe	4.0 (N)			
Mild	30.0 (N)			
Total Chronic Illness[1]	111.6 (C)	111.8 (D)		

[1]Does not include mental retardation.

SOURCES:

(A) Health Interview Surveys, 1957 (1), 1970 (2), 1971 (3), 1972 (4); United States, Persons under 17 years.
(B) Health Examination Survey, 1963–65 and 1966–70; United States, Persons ages 6–17 years.
(C) Pless and Douglas (1971); United Kingdom, 1961; Persons birth–15 years; N = 4,724.
(D) Pless (1975); Monroe County, New York, 1969; Persons 6–18 years; N = 1,756.
(E) Naggan and MacMahon (1967); Boston, Massachusetts and Providence, Rhode Island, 1930–1965; Newborns; N = 311,437.
(F) Birth Defects Monitoring Program (1978); United States, January–December, 1977; Newborns; N = 997,102.
(G) Holmes (1976); Boston, Massachusetts, 1972–1975; Newborns; N = 18,155.
(H) Harris, *et al.* (1975); Rochester, Minnesota, 1951–1963; Newborns; N = 21,152.
(I) Institute of Medicine (1973); New York, 1968; Newborns; N = 14,160.
(J) Brooke (1977), p. 95.
(K) *Cerebral Palsy*. DHEW Publication No. (NIH) 75–157, 1975.
(L) *Cystic Fibrosis*. National Cystic Fibrosis Research Foundation, 1979.
(M) *Diabetes*. American Diabetes Association, 1979.
(N) President's Commission on Mental Health. Volume II, The Nature and Scope of the Problem, pp. 40–41.

TABLE 2. Severity of Chronic Disorders (percentage of chronic cases)

Severity of Disability	Survey			
	U.K. Nation[1]	Isle of Wight[1]	Rochester, NY[1]	Hawaiian Birth Defects[2]
None or mild	54	45	37	46
Moderate	34	39	50	38
Severe	12	15	13	17

[1] Pless and Roghmann, 1971.
[2] Werner, Bierman, and French, 1971.

TABLE 3. Children and Youth Limited in Activity

	Percent of Children and Youth Limited in Activity
All Ages Under 18	3.8
Under 6	2.4
6–11	4.0
12–17	4.7
12–15	4.5
16–17	5.1
Family Income	
Under $5,000	5.2
$5,000–$9,999	4.1
$10,000–$14,999	3.7
$15,000 or more	3.4
Race	
White	3.8
Black	3.6

SOURCE: Volume III of this report, table 52.

studies show that most children with chronic disorders have mild to moderate disability, with 12 to 17 percent facing severe disability (*14*)(*17*). Although for some chronic conditions, such as sensory disorders or mental retardation, objective methods can establish the degree of severity; measurements of severity for other conditions have not been developed or are not widely accepted. These estimates of severity are important for policymaking, especially for establishing which children are most in need of services, and more empirical work is needed in this area.

Consistent with trends in the general health care of children, handicapped children in families with low incomes tend to have greater needs. For example, although "asthma is a major burden for any family, its toll on low income families is even greater. Thus, although asthma seems to be distributed evenly among various social classes, several surveys have found higher rates of severe asthma among lower socioeconomic status families." (*4*). As table 3 shows, the percentage of children limited in activity is also higher in families with low incomes.

Indices of Health Status

Longevity

Only a few chronic conditions are likely to cause death in childhood. Malignancies (primarily leukemia) and congenital malformations account for the largest percentage of childhood deaths, excluding injuries (table 4). Nevertheless, some chronic conditions appearing in childhood do shorten life expectancy markedly, resulting in death in the twenties or early thirties (*15*). The quality of life for these young adults depends in large measure on how well they have learned to live with their conditions during childhood and adolescence. Unfortunately, little empirical information is available on the functioning of adults who were handicapped in childhood.

TABLE 4. Causes of Childhood Deaths

Cause of Death	Age					
	1–17	1–5	6–11	12–17	12–15	16–17
	Number of deaths per 10,000 population					
All causes		6.4	3.1	6.0	4.4	9.1
Accidents and violence		2.9	1.6	4.2	2.7	7.0
Diseases and conditions		3.4	1.5	1.8	1.6	2.1
	Percent of deaths due to specific causes					
All causes	100.0	100.0	100.0	100.0	100.0	100.0
Accidents and violence	58.4	46.1	51.3	69.9	62.5	76.8
Accidents	50.0	41.1	49.7	56.5	52.5	60.4
Suicide	2.6	—	.3	5.4	4.0	6.7
Homicide	4.6	3.4	2.4	6.5	4.5	8.3
Diseases and conditions	41.6	53.9	48.7	30.1	37.5	23.2
Neoplasms	10.8	9.2	17.2	8.9	11.2	6.8
Malignant neoplasms	10.2	8.7	16.3	8.4	10.5	6.5
Leukemia	4.3	3.5	8.0	3.2	4.3	2.1
Congenital anomalies	6.5	12.2	6.6	2.5	3.4	1.6
Heart	3.4	6.7	3.2	1.3	1.7	.8
Nervous system	5.1	7.3	5.6	3.3	4.1	2.6
Respiratory system	4.8	8.0	4.3	2.9	3.8	2.1
Circulatory system	4.2	3.9	4.0	4.5	5.4	3.7
Infective and parasitic	2.6	4.4	2.6	1.4	1.9	.9

SOURCE: National Center for Health Statistics, Division of Vital Statistics: Unpublished data from the national vital registration system.

Need for Primary Care Services and Hospitalizations

Many chronic disorders—diabetes, sickle cell anemia, and hemophilia, for example—increase the risk of infections and serious accidents, occurrences that in turn can aggravate the chronic disorder. Thus, children with these conditions need regular primary care services—routine examinations and treatment for common illnesses—and more frequent hospitalizations for acute conditions than healthy children.

Mentally retarded children also have frequent medical problems distinct from their mental retardation: in one survey, 82 percent of institutionalized mentally retarded children had at least one medical problem, 54 percent had two or more, and 20 percent had three or more(*18*). Severe dental problems were frequent in those children who had been institutionalized the longest. Similarly, convulsions, recurrent bronchitis, major diseases, and admissions to hospitals occur more often in intellectually retarded children (*19*).

Some chronically disabled children need fairly long hospitalizations. Although utilization data do not accurately measure need, a study of newborns at two hospitals indicated that those born with defects generally remain in the hospital longer (*20*). A survey of over 200 handicapped children demonstrated that one-fifth had required hospitalization, often for lengthy periods, because of their conditions (about half were hospitalized from 2 to 6 weeks); nearly half of these hospitalizations occurred before age two. (*21*). More than half of the children in this survey had visited a physician within the preceding year because of the condition—11 percent had more than 10 physician visits and 20 percent more than 20 visits. These figures compare to a 1976 average of 6.3 visits per year for the general population of children aged 0 to 6 and 3.0 per year for children aged 6 to 16 (*22*).

Indices of Psychosocial Functioning

Chronically disabled children and their families are more likely to have psychological and social problems of various kinds than healthy children and their families. The size of their increased risk is uncertain, partly because of a lack of studies with appropriate controls. Furthermore, a child's successful adjustment to a chronic disorder apppears related to the quality of family functioning, but the extent and nature of this relationship is uncertain.

Part of the confusion lies in the differing definitions of "adjustment" and in the wide variety of measures that are used to assess "maladjustment." Many of these are not well validated and focus solely on deficits in functioning, excluding individual or family strengths. Furthermore, distinguishing between "normal" or "expected" psychological difficulties in response to a catastrophic condition and the more severe, long-term maladaptive responses is difficult.

Both anecdotal accounts and empirical evidence (*23, 19*) suggest that the impact of a chronic condition may be related to the severity of the condition in a nonlinear fashion. That is, moderately severe conditions often have a more negative effect on psychosocial functioning than either mild or very severe conditions. Put simply, it may be easier to adjust to a complete or nearly complete disability than to a partial disability.

Important factors determining the psychosocial impact of a chronic disorder include its severity, location, cosmetic effect, the age of the affected child, the socioeconomic status and marital stability of the parents, and the support of close friends and relatives. Concerted efforts are needed to identify other specific factors that cause some children and families to adapt well and others to deteriorate.

Indices of Educational Needs

Different groups of chronically disabled children have different educational needs.[2] Children who are mentally retarded, for example, need special educational services of a quite different nature than those who have specific learning disabilities or sensory deficits. Orthopedically impaired children require certain architectural and structural aids if they are to have full access to education. For children with systemic disorders, educational problems presumably result from secondary effects of the disorders, such as days missed from school or feelings of depression. In general, lengthy school absences and lower achievement levels are common with handicapped children (*24*).

Estimates of the percentage of handicapped children enrolled in schools (table 5) are substantially lower than the estimates of handicapped children in the whole population (12–13 percent). Under P.L. 94–142, school districts can receive Federal funds for special services for up to 12 percent of their enrolled populations. This amount is almost double the proportion of students currently identified as handicapped. (Some school districts may have even higher rates of handicap among enrollees, which would require support from other sources.)

HANDICAPPING CONDITIONS: DIFFERENCES, COMMONALITIES, AND SPECIAL PROBLEMS

Differences

Handicapping conditions vary widely in the amount of special medical care they require, the extent of dependence they impose, the age at which they appear, their stability, their duration, and the predictability of their progression. Sensory, cosmetic, motor, emotional, and intellectual handicaps occur; some of the more severe conditions include all of these. Disorders have acquired different "reputations" that can affect the social adjustment of the afflicted child. In addition, the impact of disability can be very different among children with the same medical diagnosis. For example, there can be a greater difference in medical status between two diabetic children than between a diabetic child and a healthy child.

Financial resources available in the public and private health care systems for the support of various disorders vary widely among the States.

Handicapping conditions also differ in the ways their physical and psychological dimensions interact. For certain physically handicapping conditions that are primarily genetic in etiology or that result from accidents, emotional sequelae can be viewed generally as "secondary problems." For those conditions that primarily affect emotional and cognitive functioning, physical health sequelae can be considered as

[2] A more complete understanding of the educational needs of handicapped children can be obtained from the educational literature (*25*) and the literature pertaining to P.L. 94–142 (*26*).

TABLE 5. Handicapped Children and Youth, According to Age, Enrollment, and Specific Handicap

Item	5–13 years	14–17 years
	Number in thousands	
Total	32,701	16,745
Total population enrolled	31,215	15,917
Percent of total population	95.5	95.1
Handicapped population[1]	2,007	1,224
Pecent of total population	6.1	7.3
Handicapped population enrolled[1]	1,954	1,127
Percent of handicapped population	97.4	92.1
Percent of total enrollment	6.3	7.1
Specific handicap[2]		
Retarded	143	97
Hard of hearing/deafness	177	65
Speech impairment	188	43
Difficulty with seeing/blindness	137	55
Seriously emotionally disturbed	88	45
Crippled	135	120
Heart trouble	101	70
Respiratory disorder	381	199
Other handicap	914	662

[1] Unduplicated counts.
[2] Duplicated counts; persons with multiple handicaps may be counted in more than one category.

SOURCE: National Center for Education Statistics, Survey of Income and Education, Spring, 1976.

"secondary problems." Family and social relationships play a complicated role in the etiology of the chronic emotional disorders, and sometimes also influence the development of emotional problems related to physical disorders. For such chronic handicapping conditions as asthma, diabetes, and possibly arthritis, both genetic and psychosocial factors seem to be involved in the onset and duration of the disorder.

Similarities

One of the most important characteristics shared by chronic conditions is the potential they all have for severe disruption of the development of the child and the life of the family.

Chronic conditions also impose routines, the impact of which should not be underestimated. They can be exasperatingly repetitive, demanding, and stressful—the constant urinalysis for the diabetic, the continual exercising for the juvenile arthritic, the consistent monitoring of the autistic child. They can also pose unexpected problems—the inability to find a baby sitter, months of disrupted sleep for parents, and embarrassment in social situations. Yet, for proper management of the disorder,

these routines must become interwoven into the family's daily life. If they are not, stress increases. Indeed, these routines often become lightning rods for the intense feelings of frustration and anger of both parent and child.

As the child grows older and major family events such as moves, marriages, and deaths occur, the child's and the family's understanding of the handicap and its meaning for them evolve. Smooth functioning can suddenly become turbulent. Periodic reassessments of both psychological and physical functioning are therefore necessary.

The chronicity of the disabling conditions also limits the goal of care for these children; instead of cure, optimal functioning is the aim. For the individual, this goal involves (l) some recognition (not necessarily total acceptance) of the disorder and the limitations it imposes, (2) efforts to attain the maximum functioning allowed by the limitations, and (3) sufficient freedom from preoccupation with the disorder so that mutually satisfying relationships can be maintained and learning can continue.

Psychological Characteristics of the Family and the Handicapped Child

An important factor that influences the psychological adjustment of the handicapped child is the overall functioning of the family (*27*). If, in spite of the handicap, the family provides a fairly stable and supportive environment, maladaptive patterns of behavior are less likely to develop. Some evidence suggests that family functioning as a whole deteriorates (*28*), that parental and marital tensions increase (*29, 30*), and that siblings show greater emotional or behavioral problems (*32, 32*) in the presence of a chronically handicapped child. Other accounts suggest that some parents and families become closer and more mutually supportive during the treatment of a chronically ill child and that siblings of such a child are not more likely to respond in maladaptive ways (*29, 33*). All of these studies, however, have numerous methodological problems that may partially account for their disparate findings.

The problems presented to parents by a chronically handicapped child demand that the family acquire certain knowledge not required of other families. They need to learn, for example, about diets, financial resources (and the complexities of securing them), how to explain to school teachers that their child is severely ill, and (not the least important) how to manage their own feelings, frustrations, and disappointments. Furthermore, they cannot usually turn to neighbors for this advice, either because the neighbors are not familiar with these problems or because the neighbors themselves react adversely to the handicap.

Health care providers therefore must be sensitive not only to what parents and families need to know but also when to provide this information. When people are under great stress, very angry, or in shock, they tend not to listen very closely. When they have in some measure digested events, information is more readily understood. Unfortunately, several studies indicate that communication between health care providers and parents is not always as helpful to parents as it might be (*34, 35*).

Another important psychological factor for handicapped children is the awareness that they are different from other children. How children learn about this difference, respond to it, and what it comes to mean in practical terms influence their lifelong psychological functioning. For example, handicapped children can feel so negative about themselves that self-esteem is never developed, or sudden crises may overwhelm their ability to understand what is happening and result in withdrawal and isolation.

In adolescence, chronically disabled children face a new set of problems. Even for healthy adolescents, the passage from childhood to adulthood is marked by rapid change and great sensitivity—the body becomes unpredictable; certainty about the future alternates rapidly with confusion; the urge for independence becomes strong; self-esteem is held tenuously.

The growth spurts of adolescence can aggravate some chronic disorders, such as cerebral palsy and conditions requiring mechanical aids (*36*). Some conditions (e.g., muscular dystrophy and cystic fibrosis) worsen through childhood, so that dependence increases during adolescence, contrary to the normal pattern of development.

By early adolescence, the future begins to assume definite shape, and the implications of chronicity suddenly become very potent. The adolescent's desire to move outward may be severely tempered not only by the real limitations of the handicap but also by his own fears and by years of parental dependence. Parents of a handicapped adolescent may also find the act of "letting go" extremely difficult.

Handicapping conditions, particularly if they are visible or curtail normal adolescent activities, interfere with social relationships. Moreover, education about responsible sexuality is as important to handicapped adolescents as to healthy ones.

The Handicapped Child and the Community

Some investigators argue that the handicapped children of this country constitute an oppressed minority, subject to systematic segregation and stereotypic assumptions of general ineptitude (6). Indeed, handicapped children and their families often find themselves either without any consistent network of community support or with outright rejection from their neighbors. For example, professionals who work with leukemic children reported that neighbors sometimes would not allow their children to play with a leukemic child out of fear that this cancer was contagious.

THE HEALTH CARE DELIVERY SYSTEM FOR CHRONICALLY DISABLED CHILDREN

The health care delivery system for handicapped children currently contains many financial, professional, and technical resources for providing necessary services, as well as an expanding base of public and legislative support. Despite these resources, health care for these children and their families remains inadequate and unorganized. The recent

passage of P.L. 94–142 has stimulated great effort toward better integration of health care services for individual handicapped children, but barriers to the law's effective functioning remain formidable.

Legislative Underpinnings

Presently, at least 10 major pieces of Federal legislation influence maternal and child health. For handicapped children and their families, the most important are the Education for All Handicapped Children Act of 1975 (P.L. 94–142), the Maternal and Child Health (MCH) and Crippled Children's Service (CCS) sections of Title V of the Social Security Act, and Medicaid (Title XIX of the Social Security Act).[3] Integrated well, these laws could form a unified base for comprehensive care to handicapped children. They have, however, generated disparate interests that frequently work against each other.

Implementation of P.L. 94–142—an Act that is complex and revolutionary in its implications—is still in its early stages. Not surprisingly, many problems of financing, coordination, and interpretation have occurred. On the whole, however, the law promises to improve substantially the care of handicapped children.

Its major provisions are

- Identification, location, and evaluation of handicapped children
- Preparation and implementation of an individual education program for each child identified
- Special education provided in the least restricted environment
- Provision of related services, including a variety of therapies, psychological services, and medical services for diagnostic and evaluation purposes
- Procedural safeguards to ensure parents due process
- In-service training of personnel

Although implementation of the Act involves medical care professionals, the medical care establishment was not involved in its passage. Consequently, there have been particular problems in developing cooperative, nonadversarial relations between local and State education agencies and existing medical resources.

One of the major medical resources for States is the CCS program, which has a very long history of providing high quality medical services to handicapped children (*37*). However, the program is small, serving approximately 750,000 children, or about eight-tenths of 1 percent of all handicapped children. Moreover, its funds are hardly adequate to its task: in fiscal year 1978, the CCS program spent just under $225 million, compared with expenditures of $22.518 million for Medicare and $18.625

[3]The others are Section 1905(a)(4)(B) of Title XIX of the Social Security Act (the Early and Periodic Screening, Diagnosis, and Treatment Legislation); the Supplemental Security Program established by the 1976 Amendments to Title XVI of the Social Security Act; Social Service Amendments to Title XX of the Social Security Act; the Rehabilitation Act of 1973 and the Amendments of 1978; the National School Lunch and Child Nutrition Act of 1946 and Amendments of 1975; the Economic Opportunity and Community Partnership Act of 1974 (the legislation that supports Head Start); and the Developmentally Disabled Assistance and Bill of Rights Act of 1975 and Amendments of 1978.

million for Medicaid in fiscal year 1977. Also, eligibility requirements vary widely among States regarding scope of services and availability of treatment for conditions (e.g., some States cover all costs; others, none).

The CCS program may now face the task of providing at least diagnostic and evaluative services to many of the children identified under P.L. 94–142, a task that will require additional funds. Indeed, now that the needs of handicapped children are receiving more attention, more financial support will be needed in general. Increasingly, both CCS agencies and local schools are turning to Medicaid and to its EPSDT program for reimbursement for health care services. Many difficulties are associated with Medicaid support for handicapped children through schools and CCS programs—problems that will not be solved soon.

On the whole, major impediments still prevent a unified legislative structure for the health care of handicapped children. However, with more experience in interagency agreements at the local, State, and Federal levels and with a more reasonable financial base, prospects of improving service integration among diverse programs are promising.

Patterns of Cost and Reimbursement

The costs of caring for chronically disabled children are borne by the Federal and State programs mentioned, plus private insurance programs, health maintenance organizations, voluntary health agencies, and parents. The annual costs of caring for a chronically disabled child depend on the disorder. For "medical-intensive" conditions such as leukemia, hemophilia, and spina bifida, costs of care are understandably high. However, in one survey, approximately 70 percent of all families with a chronically disabled child had significant financial problems as a result of the child's disorder (*38*). For parents of severely and mildly disabled children, the percentages were 66 and 44, respectively. Of 70 people with hemophilia in another survey, 42 percent estimated that medical expenses alone exceeded $1,000 annually (the average was over $850), and half had been denied health insurance at least once (*39*).

Many of the costs of caring for a chronically disabled child are hidden—special diets, architectural modifications, maintenance of a wheelchair or other orthopedic aid, travel to treatment sites, or days lost from work. The extent to which these costs are recoverable depends on the parents' insurance coverage, income, State of residence, and the particular condition being treated. Some voluntary health organizations provide generous, direct support to families. State and Federal maternal and child health programs vary in their coverage of ancillary costs, and, in any case, many middle income families are not eligible for these governmental programs and subsidies.

As the health care delivery system is currently structured, most medical treatments are paid for by a third party—a public or private insurer. The services that a family receives are partly determined by which services the insurance covers. Public and private insurance frequently does not cover primary health care, short-term counseling for emotional problems secondary to a disorder, home health care, or activities related to

coordinating care between schools and medical care providers. Consequently, providers are more likely to spend time providing reimbursable services than providing equally needed but nonreimbursable ones.

Manpower Issues: Coordination, Training, and Socialization

The health care delivery system for chronically disabled children includes not only the traditional medical service providers—pediatricians, family doctors, pediatric nurses, physical therapists, medical social workers and others—but also other institutions that are necessarily involved in the health care of handicapped children and their families—schools, public health programs, and community organizations.

The competing interests, contradictory values, and difficulties in communication between these diverse caregivers hamper the development of an integrated, comprehensive health care delivery system for chronically disabled children. Indeed, lack of coordination, which exists at all levels, from the Federal Government to local providers of services, is the most pervasive characteristic of the present system. For example, the family pediatrician and the medical specialist treating the child's disability may not coordinate their services (*40, 41, 42*). Frequently, neither takes primary responsibility for the child's overall health. Even less effective coordination may be found between professionals of different disciplines (*43*). One of the strengths of P.L. 94–142 is that it requires multidisciplinary teams to develop individual education plans for handicapped children, a provision that may ultimately force more effective cooperation between disciplines.

The skills, perspectives, and biases developed during professional training influence the subsequent practices of health care professionals. Although there are important exceptions, most health care training programs pay little attention to the handicapped child's whole environment and to developing skills in interdisciplinary cooperation. The professional training of pediatricians, for example, has traditionally lacked sustained attention to developing these skills. Instances of extremely insensitive communication between doctors and families can result (e.g., Massie, 1978), and a lack of communication between doctors and school teachers is common. To help ameliorate such problems, the American Academy of Pediatrics plans to initiate in-service and pre-service training programs to improve the skills of pediatricians in working with handicapped children, their families, and their schools. Furthermore, the increasing numbers of pediatric nurse practitioners and behaviorally oriented professionals (e.g., psychologists concerned with health care services) may bring to the medical institutions a greater sensitivity to nonmedical concerns.

For any care provider working with chronically ill children—children who will never be normal—avoiding "burn-out" is a serious and difficult problem. Training programs should include a candid review of professionals' own needs for support, in order to counteract negative feelings that might otherwise compromise the quality of care.

ACCESS AND AVAILABILITY OF SERVICES FOR HANDICAPPED CHILDREN

For adequate health care, chronically disabled children and their families must have access to (1) primary and specialized medical services; (2) advice on financial and social resources; (3) professional assessment of the psychosocial condition of the child and family; and (4) coordination of the various aspects of care. To illustrate ways the present system does not meet these four needs, and to evoke some feeling for the lives of chronically disabled children and their families, the following three case studies are presented.

Juvenile Diabetes

Juvenile diabetes, which occurs in 1 to 1.9 per 1,000 children under age 21, appears to be relatively evenly distributed across racial groups and socioeconomic classes. Because there is a genetic component to the disorder, it frequently affects several members of the same family. Juvenile diabetes is usually a more serious condition than adult-onset diabetes, and is less readily controlled. It can lead to serious medical complications, particularly kidney disease and blindness. Anecdotal and empirical evidence suggests that emotional factors are closely related to control of the disease. When juvenile diabetes is first manifested, the child may become critically ill and require hospitalization to determine diagnosis, establish the diabetic regimen, and educate parents and child about management of the disease. Usually, the child's condition improves quickly during hospitalization.

Diabetics must keep a careful balance between the level of insulin injected and the amount of sugar in the bloodstream—which depends on the sugar content of foods eaten and the amount of food energy burned during exercise. Imbalance can be serious, even life-threatening. Some diabetics experience sudden, dangerous insulin reactions if they take in too little food or burn it too rapidly through exercise. Insulin reactions produce convulsions and unconsciousness that can cause brain damage and mental retardation. Once the reaction becomes severe, the child may resist taking the quick sugar—such as orange juice, chocolate, or raisins—that will avert the full reaction. Insulin reactions often occur at night, because of the long interval between meals, when they are particularly dangerous because others may not hear cries for help, or because the child may pass out while sleeping.

When there is not enough insulin for the sugar level in the blood, coma or ketoacidosis occurs. These reactions are more likely when a child has an infection of some sort.

The numerous small details in a diabetic's life can be exhausting. For example, at the beginning of the stabilization period and during exacerbations, the second voided urine in the morning, before breakfast, must be tested and the results charted. Most diabetics can eat almost any foods; the problem is calculating calories and grams of carbohydrates, protein, and fat. Furthermore, the diabetic child generally has to eat at the

same time each day. A "brittle" diabetic cannot sleep late and miss breakfast. As noted, (*15*) "to be a good diabetic requires typical middle class values: self-control, postponement of gratification, and hope that one's efforts will be rewarded."

Case Example

John K is a 13-year-old diabetic who lives with his parents and a brother 2 years older in a small town about 30 miles from a medium-sized city. Mr. K is a sales manager for a building supply company. Mrs. K recently began a part-time secretarial job. John's diabetes was diagnosed when he was 11, although for about 6 months prior to diagnosis he had complained of being very tired, of not sleeping well, and of not being able to play games with other children—very unusual complaints because he had generally been an energetic child. His parents had taken him to the family pediatrician twice during this period. No physical cause for John's fatigue was found, and although his parents remained puzzled, they concluded that this was just a "stage" that John would pass through. The diagnosis of juvenile diabetes was made during an emergency hospitalization, precipitated by severe cold and extreme sweating, vomiting, and trembling.

Following the diagnosis, the K's were referred to the juvenile diabetic clinic of a university hospital in the nearby city. There they learned about the necessary diabetic regimen, the relationship between physical activity and insulin levels, the diminished life expectancy of a diabetic, the likelihood of long-term medical problems, and the pain and inconvenience of daily insulin injections.

From their present perspective, the parents readily acknowledge that the period from a few months prior to and the year following diagnosis was extremely difficult for the whole family. They believe that the hospital clinic provided good service, but they were upset with the long and costly trip, the long waiting time at the clinic, and the staff's relaxed attitude about controlling insulin levels. The parents wanted to be very involved in decisions about food intake and insulin shots, but believed that the clinic staff tended to focus almost exclusively on John. After several months of indecision and discussion with their pediatrician, John's parents decided to seek all of his care, except for emergencies, from the local pediatrician. This arrangement, they reasoned, would also ensure that John's regular health care could be provided by the same doctor he had always seen.

There were other problems: Mr. K's health insurance was fairly comprehensive, but it did not cover expenses for special foods, syringes, urine-testing equipment, long distance phone calls to the clinic, or transportation. In fact, Mrs. K began her part-time job to help defray these expenses.

For quite some time the K's were angry at John's school teacher, because she had told the rest of the class John was a diabetic and needed to urinate frequently. This statement resulted in considerable teasing of both John and his older brother. The two sons seemed to handle the teasing well, but their parents say they often felt sorry for them.

Just prior to John's initial hospitalization, his parents remembered that Mr. K's father had been diagnosed as a diabetic about 6 months before he had died of a heart attack. Despite many reassurances from the local pediatrician that diabetes results from a complex interaction of genetic, immunological, infectious, and nutritional factors, Mr. K admits that for several months he had blamed himself for his son's condition, until he had a long talk with a friend at work who also had a diabetic son.

John's parents now say the family has adjusted well, although they worry about how John will do in adolescence, especially with respect to dating. They are also reconsidering their decision to place John's care almost entirely with the pediatrician. They trust him, but he does not seem to know about financial resources available to families with diabetic children. They would like to find someone with whom they could also discuss dealing with John's school and teachers, who still treat John as "special."

In general, while Mr. and Mrs. K appeared very concerned about John's condition, they were not well informed about the subleties of diabetes. For example, they immediately took tight control of John's diet, exercise, and sleeping patterns with a strictness that seemed motivated more by psychological factors than by medical necessity. A nurse at the diabetes clinic had noted this situation and questioned whether the importance of control was related in any way to the grandfather's death. None of the social workers, psychiatric nurses, or psychologists at the clinic had discovered what the parents really understood about the illness and how that understanding might have affected their beliefs about controlling John's insulin levels. The pediatrician, who seemed particularly unprepared to deal with his diabetic patient and who perhaps unwisely accepted the responsibility for John's care, also appeared unconcerned about the psychological meaning of the disorder to the family.

Spina Bifida

Spina bifida is a birth defect that has replaced poliomyelitis as the major cause of paraplegia in young children. Recent technological advances and the availability of funds formerly earmarked for poliomyelitis victims have resulted in increasingly effective neurosurgery for newborns. Now repeated surgery and intensive management allow children with this condition to live into adolescence and their early twenties.

Spina bifida, a puzzling multifactorial genetic condition, results from incomplete closure of the lower end of the bony spinal cord. It occurs at the rate of one to two cases per 1,000 births. In the United States, rates in white families of low socioeconomic status are three times higher than in the upper socioeconomic groups. Rates are low among blacks, Jews, and Chinese and are high among Irish and Sikhs.

A great range of physical handicaps is associated with spina bifida, with hydrocephalus (accumulation of fluids compressing the brain) at the severe extreme. Problems common to most children with this condition

are bladder and bowel dysfunction—including incontinence—paralysis and deformities of the lower extremities, repeated fractures, tendency toward obesity, and some increased likelihood of mental retardation (although many children with spina bifida have normal intellectual function). Immediate surgery was once performed on almost all children born with this defect, but this practice has been somewhat modified. Certain criteria of severity contraindicate surgery, and children with these criteria are allowed to die.

The treatment of children with spina bifida involves a wide range of services. At birth, neurosurgery is performed to close the spinal cord lesion. Many, possibly up to 20, additional operations are needed to correct the common orthopedic problems, which include paralytic dislocation of the hip, deformed feet and knees, and brittle bones. After such surgery, many children are able to walk with braces or crutches, but a large percentage are confined to wheelchairs. Scoliosis and other spinal deformities occur frequently in those children in wheelchairs.

In general, coordinated medical care is greatly needed. In addition to surgery, the needed services include genitourinary treatment; intravenous pyelograms; blood counts; urinalyses; electroencephalograms; dermatological treatment; eye, ear, nose, and throat services; dental services; brace fittings and long-term physical therapy; consultation and counseling with the parents; primary care; and acute illness care (*15*).

Costs of hospitalization and medical service are usually reimbursed, at least partially, through insurance. Expenses not met by insurance—wheelchairs, braces, home equipment, diapers, and transportation—are often covered through Crippled Children's Services, but the extent of this coverage varies considerably from State to State.

Given the likelihood of some intellectual retardation, these children generally require special education services to identify and develop their learning capacities. Because many children with spina bifida are confined to wheelchairs, special access to school buildings and classrooms is needed.

Spina bifida children and their parents have all the problems that affect people in braces and wheelchairs—well-intentioned pity, assumptions of inadequacy, immobility, the inability to participate in active play and most sports, for example. Generally, parents need a great deal of support in adjusting to the potentially overwhelming psychosocial problems associated with spina bifida. Typical problems include the almost constant smell of urine that accompanies these children, which is apparently extremely difficult to prevent; parental overprotectiveness; the child's obesity (which makes mobility even more problematic); and the child's extreme feelings of inferiority, which may be exacerbated upon school entrance and can lead to serious depression during adolescence.

Case Example

Three-year-old Kathy S was born with spina bifida of moderate severity soon after her parents were graduated from high school. Her parents grew up in lower income families and currently live with Kathy's maternal grandmother. Mr. and Mrs. S had never heard of spina bifida, and it was

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some time before they understood and adjusted to the implications of the disorder.

Luckily, the social worker at the metropolitan hospital where Kathy was born was knowledgeable about the financial resources available to the family. She referred them to the Crippled Children's Agency, which has since coordinated the financing of the many operations and orthopedic devices that Kathy has needed. Because of the support available through various Federal programs and through the local chapter of the National Spina Bifida Association, the family's problems have not been financial. Instead, they have been practical, daily difficulties: too little sleep, getting to the hospital clinic, learning the skills necessary to take care of Kathy's needs—particularly her frequent urinary tract infections—and coping with an ungainly, unattractive, and malodorous child in a small apartment.

Although Kathy's family, particularly her grandmother, tries to concentrate on the positive aspects of her development, and although her mother and grandmother share responsibility for her care, they often wish that they could take a vacation from Kathy or place her in a preschool, day care service, or respite facility capable of caring for a severely disabled 3-year-old. She may be admitted to a half-day special education program in a nearby university next year.

Kathy's grandmother is worried about her daughter's marriage. After 3 years of stress, her son-in-law is tired, very depressed, and considering leaving the family, "as we all are," she admits. Kathy's mother is mostly concerned about how they will cope when Kathy is bigger. She will need sturdier and larger wheelchairs, which means that the family will have to move to a new apartment or substantially modify the present one. Kathy's mother also worries that she will have another deformed child if she becomes pregnant, although the hospital social worker told her not to worry about this possibility.

Neighbors have been fairly helpful, and the medical care at the hospital has been adequate, except for long waiting lines and minimal information about the operations Kathy needs. During the first year a very helpful nurse came to the home periodically. The family was sorry she stopped coming (when the hospital cut back staff), because she had been so informative and supportive. The family certainly has concerns about their own and Kathy's future, but in the grandmother's words, they "just live from day to day and take things as they come."

In general, this family seems to be coping, but without much spirit or guidance. Presently, no one is available to explain the full range of treatment Kathy will need or the events during surgery. Furthermore, they do not have a regular pediatrician and take on faith that all Kathy's needs are being met by the hospital.

Mild Mental Retardation

Approximately 2 percent of all children are mildly mentally retarded, scoring between 55 and 70 on standardized intelligence tests. Most of the children diagnosed as mildly mentally retarded are from lower socioeco-

nomic households and may be subject to environmental conditions that are not conducive to optimal development.

Mildly retarded children generally require few medical services beyond primary health care, but they have diverse social and educational needs. The number and types of skills that they can develop vary widely. The goal of "optimal functioning" is particularly relevant for a mildly mentally retarded individual.

More often than not, mildly mentally retarded children know that they are significantly disadvantaged, compared to other children, but lack the verbal skills to express their feelings about this disadvantage or to ask for help in understanding their predicament. Consequently, behavior problems often arise—impulsiveness and disruptiveness or withdrawal and isolation. These behavior problems may be compounded by the labels of "retard" or "stupid" that children reserve for those in special education classes. An estimated 10-30 percent of noninstitutionalized retarded chilren have significant emotional problems (*44*).

Development of effective means for providing emotional support for mentally retarded children outside the family has been very difficult. Different agencies have different priorities. Some serve only severely retarded children; others serve only emotionally disturbed children. As a result, emotionally disturbed mildly retarded children have become one of the largest groups who "fall through the cracks" between agencies.

Mildly mentally retarded children place many demands on their families. They require great patience, communication at very basic levels, and special protection. Yet, these children have their best chance of reaching optimal functioning within a caring, mutually supportive family. Moreover, because few residental institutions for the retarded currently accept mildly retarded children, support for their families is essential.

Case Example

Ronnie B is a hefty 16-year-old who lives with his mother and father in a lower middle class neighborhood in a fairly large city. His father drives a truck and his mother has not worked outside the home since Ronnie was born.

Ronnie has a long history of learning and emotional problems. He has been in special education classes during almost all of his schooling. Over the years he and his family have been in touch with numerous professionals—a minister, two school psychologists, a social worker in a community mental health center, and five staff members of the child psychiatry outpatient clinic of a teaching hospital. Repeated evaluation and testing have reaffirmed the consensus that Ronnie is mildly mentally retarded with many emotional problems that significantly interfere with his development and capacity to learn. No consensus has been reached, however, on the exact nature of these emotional problems or the best strategies for solving them. As a result, few attempts have been made to coordinate the services and support of the various concerned individuals to help this family. In particular, the schools apparently never have paid sustained attention to Ronnie's problems partly because of extremely poor

special education facilities, and partly because the family tends to be very uncooperative.

The efforts of these professionals probably have prevented family life from deteriorating completely, but it is clear that Ronnie and his parents have been facing a long list of problems for some time. Ronnie has never had any friends. Instead, he has a collection of sticks at home that he says are his friends and that his parents are afraid to take away because he gets angry. His mother has never left him alone in the house, and he has never spent the night away from home. The parents admit that they have remained married for Ronnie's sake. The father also appears to have significant emotional problems. The mother wants to get a job but believes she would have to learn how to drive a car, a feat that she deems impossible.

At one point, Mr. and Mrs. B became extremely worried about Ronnie's violent outbursts. In one such instance, he struck his mother and knocked her over. This event, coupled with the recognition that he would soon have to begin living independently, prompted the parents to inquire about placing him in an institution, a move recommended by mental health professionals several times in the past but vetoed by the parents.

Unfortunately, by the time they began to investigate placement possibilities, Ronnie was too old for most of the institutions for emotionally disturbed children, although too young for adult half-way houses or other adult residental living arrangements. Furthermore, he was too emotionally disturbed or not intellectually retarded enough for institutions that accepted teenagers with behavior problems. Ronnie's parents did not have enough money to send him to a suitable private institution out-of-State.

The only available solution was a State-run therapeutic residence. However, for funding purposes, it required that parents give up custody of their children to the State—a move that Mr. and Mrs. B vehemently opposed, until Ronnie hit his mother again during one of his angry outbursts. The application was subsequently submitted and Ronnie was placed on the waiting list. Apparently there will be a place for him in about 4 months, just before he turns 17.

This family has endured severe and chronic emotional problems. These problems were first evident to a school psychologists who noted when Ronnie was 7 that extreme family problems were aggravating Ronnie's existing limitations. When the usual professional suggestions—urging the parents to seek counseling, providing special educational facilities, raising the possibility of institutional placement—were largely ignored, the psychologists turned their attention to other students. Because few suitable placements are available for children like Ronnie, he cannot be helped readily by the existing health care delivery system.

Case Studies: Conclusions

These three cases hardly illustrate the full range of inadequacies of the health care delivery system for chronically disabled children. However,

they provide a picture of the complex needs of these children and their families, and the extent to which the health care delivery system fails to meet these needs.

If the delivery system were more responsive to the needs of the diabetic child and family, it would provide sufficient flexibility to allow different ways of working with different families, information about resources available to the pediatrician, school programs where teachers could learn to cope more effectively with chronically ill children, and additional social supports for parents to help them with both practical and emotional problems.

The family of the girl with spina bifida urgently needs relief from the daily stresses of her care. In addition, this family needs a concerned advocate who could help them find such services as professional genetic counseling, primary health care, and a source of information about the operations that are needed and their implications.

The care of the mentally retarded adolescent illustrates one of the worst miscarriages of professional concern. Only by working together could the different parts of the health care system have provided this family with some chance for solving its problems.

In any of these cases, if the family and child had been in the right city and found the right professionals, chances are that their needs would have been well met. However, such situations are relatively rare. Providing the full range of services when and where they are needed will occur only with integrated legislation, coordination, and cooperation among professionals and changes in reimbursement patterns and professional training. Greater support for direct health services is also needed.

Needed Health Services

The treatment of acute illness has an obvious goal: returning the individual to a state of healthy functioning, or "curing the patient." Cure is not possible for children with handicapping conditions. Instead, the goal of care and treatment must be "optimal functioning."[4] Many different skills may be necessary for a disabled child to reach optimal functioning and to assist the family in helping the child toward this goal. These include medical diagnosis and care (from providers of both primary and special services), social services, psychological assessment and care, physical rehabilitation, educational assessment, school and community liaison services, and other services tailored to meet the individual needs of the child and family. Not only must these services be available, but they also must be coordinated in some reasonable way. Furthermore, because of the long-range and frequently complex nature of chronic disorders,

[4]Definitions of optimal functioning will certainly vary as much as the definitions of "adjustment," "normality," and "health." But any definition should encompass at least: the development of the child's self-help skills leading toward the greatest feasible degree of independence; an ability to perform useful work; a capacity for participating in rewarding interpersonal relationships; and freedom from preoccupation with the disorder.

communication among the various service providers must be sustained and reasonable continuity maintained from one year to the next.

Like all children, a handicapped child lives in a very complex environment, any part of which can be nurturant, destructive, or neither. To aid the handicapped child toward optimal functioning, the goal of health care professionals must be to help ensure that each area—medical, social, educational, financial, and so forth—nurtures the child's development.

Assessments

Comprehensive health care services for handicapped children require understanding what the child and family need to reach the goal of optimal functioning and developing a fairly comprehensive plan to meet their needs, including the identification of who will be responsible for coordinating care.

Assessment of the child's medical status, prognosis, and functional capabilities is the first step. In addition to establishing a physical diagnosis, such an assessment would establish routines for the child and parents and be the basis for reasonable expectations for the level of functional independence that can be achieved.

Because of the major role played by the family in daily management of the child, an assessment of the family's strengths and weaknesses suggests methods for facilitating the adjustment process and notes potential trouble spots. The evidence for greater disturbance in the psychosocial functioning of handicapped children in comparison to healthy children underscores the need for complete psychosocial assessment of both child and family and the importance of identifying those who risk more serious problems.

Assessment of community resources available to the family—home health agencies, transportation, volunteer groups, and, most important, financial resources—is needed. Identifying the most appropriate educational environment for the child is also of crucial importance. This identification requires competent education specialists and good liaison between the medical and education systems.

Improved Case-Finding Practices

Defects detectable at birth and extremely low birth weights account for a large proportion of chronically disabled children (*44, 46*). Recently, the technology for medical diagnosis and care of newborns has improved dramatically. The increasing number of neonatal intensive care units and a sophisticated reporting system for hospital births ensure that in the future an even larger proportion of chronically handicapped children will be identified at birth (*47*). This situation will provide an opportunity for health care professionals to begin working with the infants and their families immediately, to ensure proper management of the disorder, decrease the likelihood of disability, and aid the family with psychological and psychosocial support. At present, newborns at risk for disability may be identified and appropriately cared for during their initial hospital stay,

but that contact—and the opportunity for any necessary followup regarding management of care—is frequently lost afterward (*20*).

For those children whose handicapping conditions appear later in childhood, adequate case-finding requires effective outreach and community education coupled with well-publicized avenues for referrals. Inadequacies in this area are indicated by the following:

> Insofar as Genesee County (Michigan) is found to be vastly underidentifying and underserving handicapped preschoolers, the indictment is not solely of the school districts, but of the community as a whole. Child-related professionals are not referring or advocating for services frequently enough, parents are not familiar enough with educational entitlements and available programs, and the schools are not providing enough public information on special education mandates. (*43*)

P.L. 94–142 requires States to outline their processes for identifying handicapped children. However, with the exception of incentive grants for identifying handicapped children between ages 3 and 5, specific funding is not provided to the States for this purpose. Under these circumstances, all counties may not have effective means for identifying preschool handicapped children for quite some time.

Health Promotion and Disease Prevention Strategies[5]

Society has long recognized that chronic handicapping conditions appearing in childhood place multiple burdens on communities, families, and, of course, the afflicted children. Therefore, interest in the prevention of these conditons has always been high. However, the knowledge, strategies, and resources to mount effective preventive efforts have not been at hand—certainly there are few such simple and effective measures for preventing handicaps as immunizations for preventing infectious diseases. Recent advances in the understanding of genetic and environmental influences on health and illness have changed this picture somewhat. Preventing chronic and handicapping conditions remains complex because of the great diversity of conditions, the multiple and interacting factors—genetic, environmental, socioeconomic, behavioral, and others—that contribute to their etiology and severity, and the great variation in preventive strategies that may be devised to address these factors.

Primary prevention includes those actions taken prior to the development of a disease or disability to prevent its occurrence, such as immunization or genetic counseling. *Secondary prevention* includes those actions taken to detect disease in its early, asymptomatic stages and to arrest its progress—such as screening for incipient hypertension or providing crisis counseling to avoid serious emotional problems. *Tertiary prevention* includes those actions taken after the development of a disorder to reverse its progression or to minimize its effects—such as administering vitamin B–12 to prevent the recurrence of the manifesta-

[5]This section was written by Sarah S. Brown and Henry Ireys.

tions of pernicious anemia or providing rehabilitation services to children with severe scoliosis. (*46*).

Health promotion is a generic term referring to activities aimed at improving the quality of life and fostering healthy environments. In its broadest sense, it encompasses all three levels of prevention. Important examples of each of the three levels follow.

Primary Prevention Strategies

Prenatal Care—Prenatal care is one of the best means for preventing premature births and fetal and neonatal health problems. Prenatal care plays an especially significant role in the reduction of the grave consequences of prematurity, including mental retardation and certain physical impairments. It is particularly important for pregnant teenagers, particularly those under 15, who are more at risk than older women for such pregnancy complications as toxemia and premature labor.

Despite the known value of prenatal care for mother and infant, in general it has not been employed as fully as it should be.[6] Many women at highest risk receive little or no prenatal care.

Every effort must be made to increase women's access to and utilization of quality prenatal care services. Such efforts should include education regarding the value of prenatal care, outreach to high-risk groups, such as teenagers, removal of financial and eligibility barriers, and continued research and evaluation to improve the quality of prenatal care.

Prevention of Alcohol Abuse During Pregnancy

The adverse effects of alcohol on the development of the fetus are well known, but often not recognized. One of the most serious clinical manifestations of the "fetal alcohol syndrome" (FAS) is mental deficiency, including severe mental retardation. Other manifestations are low birth weight and various abnormalities of the face, limbs, genitals, and cardiac and neurological systems.

The extent of alcohol abuse among women of childbearing years is unknown, partially because various social factors keep many of these women hidden. But Federal estimates are that as many as 1 in 2,000 births may be affected by FAS.

The potential FAS incidence among infants born to teenagers is particularly disturbing. According to figures obtained in the 1974 National Survey of High School Students, about 8 percent of teenage girls drink distilled spirits once a week or more. (School dropouts are not included and may have higher drinking rates.) In 1974, 247,000 babies were born to girls 17 and under in the United States. Thus, a conservative estimate of the number of infants born to adolescent mothers and who may be at risk for FAS is almost 20,000 annually. The actual number is probably considerably higher, however, because studies show that teenage problem drinkers are also likely to have early sexual experience; teenage

[6] For details on the rationale for, components in, and utilization of prenatal care, see "A Child's Beginning" in this volume.

pregnancy and problem drinking may well be more than randomly associated.

FAS prevention strategies revolve primarily around three options: prevention of alcohol abuse itself—especially in pregnant women—prevention of births to women with drinking problems (through contraception and abortion), and general health education directed toward the public at large regarding the risks of alcohol abuse. Each of these options is limited in its demonstrated effectiveness. Preventing alcohol abuse remains problematic, effective contraceptive methods and abortion are not universally available or acceptable to American women, and current health education efforts have limited effectiveness. Each of these problems is greater when adolescents are the target population.

Prenatal Diagnosis of Congenital Conditions—Through various tests, an ever-increasing number of birth defects can be diagnosed during pregnancy with a high degree of accuracy. These defects include such severe conditions as Down's syndrome, neural tube defects, and Tay-Sachs disease. Prenatal detection of defects permits the options of terminating the pregnancy and of early preparation for care of a severely handicapped infant. If treatments for these defects become available, prenatal diagnosis will enable early initiation of ameliorative measures.

Prenatal diagnosis currently has four major limitations: (1) opposition to abortion for genetic disorders, (2) inadequate facilities and personnel to perform tests on all candidates for the procedures,[7] (3) the uneven policies of third-party payers with respect to reimbursement for the costs of the tests or subsequent abortions, and (4) limitations of the technology, which include false negative and false positive results for some defects (although the incidence of erroneous results is generally low), and the still limited number of genetic disorders detectable prenatally.

Secondary Prevention Strategies

Early Case-Finding—Shortly after birth, neonates may be screened for several treatable inborn errors of metabolism or endocrine function that, if left untreated, result in chronic and handicapping conditions. (Two of the best known are phenylketonuria and hypothyroidism, both of which can result in varying degrees of mental retardation.) Some States require such screening for all newborns, and others are considering doing so. Even though the number of affected infants is small, the benefits of early diagnosis and treatment are profound.[8]

Provision of Social Supports—Severe emotional problems secondary to chronic disorders can sometimes be prevented if sufficient social support is provided. For example, parents with leukemic children have organized

[7]Candidates include women over 35, identified carriers of genetic defects, women who have previously borne a genetically defective child, and others known to be at risk.

[8]For an estimate of possible savings through early treatment of these disorders, see "A Child's Beginning" in this volume.

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to help other parents cope with the stresses involved in caring for a child that may die.[9] The provision of an appropriate advocate for the family can help in locating financial resources and in understanding the reasons for and implications of a particular medical treatment—all of which would help to prevent stresses that could result in maladaptive patterns of adjustment.

Tertiary Prevention Strategies

Appropriate School Placement. In 1974–75, 2.5 million children with handicaps were not receiving an appropriate education (1975 United States Code: Congressional and Administrative News. 94th Congress, First session, Vol 2, 1975, pp. 1425–1508). Presumably, many of these children had had handicapping conditions for some time but had not been placed appropriately either because of misdiagnosis or because they were assumed to be uneducable. Appropriate educational placement would help minimize the effect of the handicap by enhancing the child's learning abilities and is an environmental approach to preventing unnecessary, further deficits in health status.

IMPLICATIONS OF SERVICES NEEDED BY CHRONICALLY DISABLED CHILDREN AND THEIR FAMILIES

The foregoing discussions of the health needs of chronically handicapped children and their families and the ways in which the current health care delivery system addresses or fails to address them, raise numerous public policy issues. Several of these issues and their implications have been selected for further discussion in this final chapter.

Integrated Legislation

Coordination of P. L. 94–142, the CCS program, and EPSDT would enhance dramatically the care of chronically handicapped children and their families. Demonstration projects, such as those sponsored jointly by the Department of Education and the Office of Maternal and Child Health Services, can provide examples of different means of achieving programmatic integration at the State level. For coordination on a national level, however, several difficult questions remain, including:

- Who is the final guarantor of quality care for this population: the State or Federal Government? Schools or CCS programs?
- To what extent should the Federal Government set and enforce guidelines for State programs?
- What role might regional offices play in providing States with assistance or in monitoring State programs?

[9] Lewis, S., Vanderbilt University Medical Center, Personal communication, 1979.

Financing Necessary Services

The current system for financing the care of handicapped children is inequitable, capricious, and often indifferent to psychosocial service needs. Two arguments suggest that the health care system should be more active in seeking to provide comprehensive care for this population: first, because medical technology now lengthens the lives of handicapped children, there is an obligation to preserve the quality of those lives by providing families with sufficient support so that relatively successful adaptation is achieved; and second, because our society ostensibly views adequate health care as a right of all individuals, and because chronically disabled children need adequate psychological and social services as part of their health care, these must be provided.

The child and family can adjust to a handicap successfully only if they have sufficient freedom to make carefully considered choices, including freedom from crippling financial burdens, from social stigma, from educational dead ends, and from emotional paralysis. If the health care system is to serve this population adequately, it must include financial, psychological, social, medical, and educational support. Health care providers can act as consultants, presenting the family with various alternatives, providing good counsel, and supporting the family when necessary. But the family must be closely involved in making final decisions.

Family Privacy

The comprehensive care required by chronically disabled children carries with it a major risk to family privacy. Comprehensive assessments allow the collection of a great deal of information about a family's medical history and the social and educational functioning of its members. Potentially, this information could be available to personnel of numerous public or private agencies. Clearly, appropriate safeguards must be established to protect families from misuse of this information.

Needed Research

Research directed at clarifying issues raised by current legislative programs should be undertaken, to help in their implementation or to lay the groundwork for any subsequent amendments. For example, as a result of P.L. 94–142, certain applied research is necessary to develop effective outreach and case-identification strategies, strategies for coping with chronically handicapped children in regular classrooms, the identification of specific links between evaluation results and appropriate curriculum goals, and a means for predicting which handicapped children will not benefit from mainstreaming. Evaluation of the cost and efficacy of different strategies for managing the care of the handicapped child, an area about which very little is known, should be of great assistance to policymakers.

Because most handicapped children live in families, research is needed on family adjustments to chronic handicap. Work in this area has just begun, and improvements in methodology are necessary, along with additional assessment tools. Methods need to be developed to provide families with more information, control, and decisionmaking power in medical settings. In general, to ensure that chronically handicapped children receive adequate health care, more must be learned about the way families understand and respond to disability and to the health care system.

Prevention, which represents an important means of reducing the frequency and severity of chronic disorders, should be a third major focus of research. This research would encompass a wide spectrum—from research on genetic factors in the occurrence of disabling conditions, to developing methods for early identification and, when possible, treatment of disorders, to identifying harmful environmental agents (such as alcohol) causing handicaps, to developing strategies to encourage preventive behavior, including the use of personal preventive health care services.

APPENDIX

Types of Chronic Handicapping Conditions of Childhood

A. Disorders of the Central Nervous System
   1. Poliomyelitis
   2. Cerebral palsy
   3. Epilepsy and other seizure disorders
   4. Spina bifida
   5. Spinal cord and cranial injury

B. Sensory Disorders
   1. Speech disorders: cleft lip–palate, articulation defects, stuttering, mutism
   2. Hearing impairment, including deafness
   3. Vision impairments

C. Cosmetic Disorders
   1. Facial deformities: severe acne, severe scarring
   2. Burns
   3. Scoliosis
   4. Dwarfism
   5. Cleft lip-palate
   6. Many CNS disorders

D. Mobility Disorders (Muscular and Skeletal Systems)
   1. Various orthopedic disorders
   2. Thalidomide deformities

3. Osteogensis imperfecta
4. Amputations
5. Muscular dystrophy
6. All the CNS disorders

E. Systemic Disorders

1. Diabetes
2. Hemophilia, sickle cell anemia, and other blood dyscrasias
3. Cystic fibrosis
4. Asthma
5. Arthritis
6. Heart disease
7. Kidney disease

F. Malignancies

1. Leukemia
2. Other cancers

G. Mental Retardation

1. Borderline
2. Severe
3. Many CNS disorders

H. Psychiatric Disorders

1. Schizophrenia and psychosis
2. Severe affective disturbances
3. Personality disorders
4. Long-term behavior disorders

I. Severe Developmental Disorders

1. Failure-to-thrive syndrome
2. Autism

J. Persistent Learning Disability

REFERENCES

(1) Harvard Child Health Project. *Toward a Primary Medical Care System Responsive to Children's Needs.* Cambridge, Mass.: Ballinger, 1977.

(2) Mundel, D. *Developing a Better Health Care System for Children, Volume III.* Cambridge, Mass.: Ballinger, 1977.

(3) Silver, G. *Child Health: America's Future.* Germantown, Maryland: Aspen Systems Corporation, 1978.

(4) Freudenberg, N., N. Clark, C. Feldman, J. Millman, I. Valle, and Y. Wasilewski. *The Self-Management of Childhood Bronchial Asthma: Implications for Health Education and Child Health Services.* Paper presented at the meeting of the American Public Health Association, November 1979.

(5) Task Force on Pediatric Education. *The Future of Pediatric Education: A Report.* Evanston, Ill.: 1978.

(6) Gliedman, J. and W. Roth. *The Unexpected Minority: Handicapped Children in America.* N.Y.: Harcourt, Brace, Javanovich, 1980.

(7) Pless, I. and P. Pinkerton. *Chronic Childhood Disorder: Promoting Patterns of Adjustment.* London: Henry Kimpton Publishers, 1975.
(8) Alford, 1979. *Health Care Politics: Ideological and Interest Group Barriers to Reform,* Chicago: University of Chicago Press, 1975.
(9) Mattson, A. "Long-term Physical Illness in Childhood: A Challenge to Psychosocial Adaptation." *Pediatrics* 50: 803–805, 1972.
(10) U.S. Bureau of the Census. *Current Population Report.* Series T-23, No. 69. Washington, D.C., Government Printing Office, June, 1978.
(11) Schorr, L. *The Family's Interface with Social Institutions.* A paper presented to the American Orthopsychiatric Association, April, 15, 1977.
(12) Brewer, G. and J. Kalealik. *Handicapped Children: Strategies for Improving Services.* New York: McGraw-Hill, 1979.
(13) Mattson, A. "Long-Term Physical Illness in Childhood: A Challenge to Psychosocial Adaptation." *Pediatrics,* 50: 803, 1972.
(14) Pless, I. and K. Roghmaan. "Chronic Illness and Its Consequences: Observations Based on Three Epidemiological Surveys." *Journal of Pediatrics* 79(3): 351–359, 1971.
(15) Travis, G. *Chronic Illness in Children.* Stanford: Stanford University Press, 1976.
(16) The President's Commission on Mental Health, 1978, The Nature and Scope of the Problem, Vol. II, 39–41.
(17) Werner, E., J. Bierman, and F. French. *The Children of Kauai.* Honolulu: University of Hawaii Press, 1971.
(18) Smith, D. "Medical Needs of Children in Institutions for the Mentally Retarded," American Journal of Public Health, 59: 1376–1384, 1969.
(19) Rutter, M., J. Tizard, and K. Whitmore. (Eds.), *Education, Health, and Behavior Part II.* London: Longman, 1970.
(20) Klerman, L., J. Alpert, and M. Kishor. *A Follow-up Study of Children Handicapped at Birth.* Waltham, Mass.: The Florence Heller Graduate School for Advanced Studies in Social Welfare, Brandeis University, 1978.
(21) Pless, I. and B. Satterwhite. "Chronic Illness in Childhood: Selection, Activities, and Evaluation of Nonprofessional Family Counselors." *Clinical Pediatrics* 11: 403–410, 1972.
(22) National Center for Health Statistics, Vital and Health Statistics, Series 10, Nos. 72, 95, 100, 115, and 119.
(23) McAnarney, E., I. Pless, B. Satterwhite, and S. Friedman. "Psychological Problems with Chronic Juvenile Arthritis." *Pediatrics* 53: 523–528, 1979.
(24) Cairns, N., S. Lansky, and P. Klopovich. *Meeting the Educational Needs of Children With Cancer.* Paper presented at the American Psychological Association Convention, New York City, September 1979.
(25) Tjossem, T. (Ed.). *Intervention Strategies for High Risk Infants and Young Children.* Baltimore: University Park Press, 1976.
(26) Jacobs, F. and D. Walker. "Pediatricians and the Education for All Handicapped Children Act of 1975 (Public Law 94–142). *Pediatrics* 61: 135–137, 1978.
(27) Pless, I. "Adjustment of the Young Chronically Ill." *Research in Community and Mental Health* 1: 1979.
(28) Friedrich, W. "Ameliorating the Psychological Impact of Chronic Physical Disease on the Child and Family." *Journal of Pediatric Psychology* 2: 26–31, 1977.
(29) Burton, L. *The Family Life of Sick Children: A Study of Families Coping With Chronic Childhood Disease.* London: Routledge and Kegan Paul, 1975.
(30) Gath, A. "The Impact of an Abnormal Child Upon the Parents." *British Journal of Psychiatry* 130: 405–410, 1977.
(31) Lavigne, J. and M. Ryan. "Psychological Adjustment of Siblings of Children With Chronic Illness." *Pediatrics* 63: 616–627, 1979.
(32) Sourkes, B. *Siblings of a Child with a Life-threatening Illness.* Paper presented at the American Psychological Association Convention, September 1979.
(33) Hewitt, S. and J. Newson. *The Family and the Handicapped Child.* London: Allen & Unwin, 1970.
(34) Lewis, C., R. Faden, C. Becker, J. Freeman, and A. Faden. *Patient Management of Chronic Illness: Do Health Providers Know What Patients Want to Know?* Paper presented at the 10th Annual Conference on Health Education, London, September 1979.
(35) Power, P. and D. Sax. "The Communication of Information to the Neurological Patient: Some Implications for Family Coping." *Journal of Chronic Diseases* 31: 57–65, 1978.

(36) Freeman, R. "Psychiatric Problems in Adolescents With Cerebral Palsy." *Developmental Medicine and Child Neurology* 12: 65–75, 1970.

(37) Ireys, H. "The Crippled Children's Service: A Comparative Analysis of Four State Programs." Mental Health Policy Monograph Series No. 7, The Center for the Study of Families and Children, Vanderbilt Institute for Public Policy Studies, Vanderbilt University, 1980.

(38) Pless, I. and B. Satterwhite. "Chronic Illness." In R. Haggerty, K. Roghmann, and I. Pless. (Eds.), *Child Health and the Community*. New York: Wiley, 1975.

(39) Meyers, R. et al. "The Social and Economic Impact of Hemophilia—A Survey of 70 Cases in Vermont and New Hampshire." *American Journal of Public Health* 62: 530–543, 1972.

(40) Kanthor, H., B. Pless, B. Satterwhite, and G. Myers. "Areas of Responsibility in the Health Care of Multiply Handicapped Children." *Pediatrics* 54: 779–785, 1974.

(41) Pless, I. and B. Satterwhite. "The Family Counselor." In R. Haggerty, K. Roghmann, and I. Pless. (Eds.), *Child Health and the Community*. New York: Wiley, 1975.

(42) Stein, R., C. Riessman, and D. Jessup. *Unmet Health Needs of Chronically Ill Children*. Paper presented at the American Public Health Association. New York City, November 1979.

(43) Jacobs, F. *Summary Report: The Identification of Preschool Children With Handicaps: A Community Approach*. Cambridge, Mass.: Community Child Health Studies, Harvard School of Public Health, October 1979.

(44) Balthazar, E. and H. Stevens. *The Emotionally Disturbed, Mentally Retarded*. Englewood Cliffs, N.J.: Prentice Hall, 1975.

(45) Harding, R., J. Heller, and R. Kesler. "The Chronically Ill Child in the Primary Care Setting." *Primary Care* 6(2): 311–324, 1979.

(46) Nightingale, E., M. Curetan, V. Kalmar, and M. Trudeau. "Perspectives on Health Promotion and Disease Prevention." Washington, D.C.: Staff paper, Institute of Medicine, National Academy of Sciences, January 1978.

(47) MacQueen, J. "The Current Status of Services for the Handicapped Child." *Journal of the Iowa Medical Society*: 358–364, October 1978.

BIBLIOGRAPHY

Aldhizer, T., M. Solle, and R. Boher. "A Multidisciplinary Audit of Diabetes Mellitus." *Journal of Family Practice* 8: 947–951, 1979.

Birth Defects Monitoring Program. *Congenital Malformation Surveillance*. Atlanta, Ga.: Center for Disease Control.

Brooke, W. *A Clinician's View of Neuromuscular Diseases*. Baltimore: William and Wilkins, 1975.

Debusky, M. *The Chronically Ill Child and His Family*. Springfield, Ill.: Thomas, 1970.

Drotar, D., A. Baskiewicz, N. Irvin, J. Kennell, and M. Klaus. "The Adaptation of Parents to the Birth of an Infant With a Congenital Malformation: A Hypothetical Model." *Pediatrics* 56: 710–717, 1975.

Harris, L. "Congenital and Acquired Abnormalities Observed in Live-Born and Stillborn Neonates." *Mayo Clinic Proceedings* 50: February 1975.

Hobbs, N. "Helping Disturbed Children: Psychological and Ecological Strategies. *American Psychologist* 21: 1105–1115, 1966.

Holmes, L. *The Malformed Newborn, Practical Perspectives*. Boston, Mass.: Genetics Unit, Massachusetts General Hospital, 1976.

Institute of Medicine. "Infant Death: An Analysis by Maternal Risk and Health Care Contrasts." In *Health Status, Volume II*. Washington, D.C.: National Academy of Sciences, 1973.

Moos, R. *The Human Context: Environmental Determinants of Human Behavior*. New York: Wiley, 1976.

Naggan, L. and B. MacMahon. "Ethnic Differences in the Prevalence of Anencephaly, and Spina Bifida in Boston, Massachusetts." *New England Journal of Medicine* 277: 1119–1123, 1967.

Palfrey, J., R. Mervis, and J. Butler. "New Directions in the Evaluation and Education of Handicapped Children." *New England Journal of Medicine* 298: 819–824, 1978.

Pless, I. In *The Care of Children with Chronic Illness*. Columbus, Oh.: Report of the 67th Ross Conference on Pediatric Research. Moore, T. (Ed.). Ross Laboratories, 1975.

Pless, I. and J. Douglas. "Chronic Illness in Childhood: Part I Epidemiological and Clinical Characteristics." *Pediatrics* 45: 405–414, 1971.

Pless, I., B. Satterwhite, and D. van Vechten. "Chronic Illness in Childhood: A Regional Survey of Care." *Pediatrics* 58: 37–46, 1976.

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Pless, I., B. Satterwhite, and D. van Vechten. "Division, Duplication, and Neglect: Patterns of Care for Children with Chronic Disorders." *Child Care, Health, and Development* 4: 9–19, 1978.

Stein, R. and C. Riessman. *A New Measure of Impact on Family of Chronic Childhood Illnesses.* A paper presented at the American Pediatric Association, Atlanta. Ga., April 1979.

SECTION III

ACCESS TO CARE

CHILDREN'S HEALTH CARE: THE MYTH OF EQUAL ACCESS

by
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INTRODUCTION

Medicaid and other Federal programs have resulted in significant gains in both health and health care among the poor. Mortality rates for all age groups have declined fairly steadily over the last decade, with much of the reduction occurring in diseases that are concentrated disproportionately among the poor (*1*). The gaps in physician utilization rates between poor and nonpoor have also narrowed significantly. The traditional direct relationship between income and use has been replaced by a U-shaped pattern, with the lowest rates occurring among middle-income groups (*2*). Since 1969, the poor have actually used more care than the rich. By 1975, the differential had grown to 1.5 visits per year—people with family incomes below $3,000 averaged 6.4 visits per year, compared with 4.9 visits for those with family incomes of $15,000 or more (*3*). But these gains, while important, do not tell the whole story.

The focus of concerns in health policy has also shifted substantially during the last decade. As economist Rita Campbell has observed, "In the opinion of many well-informed economists, the poor under Medicaid do have access to adequate medical care, with the exception of some rural poor and children of relatively few urban poor" (*4*). Reviewing a variety of evidence, she claims to rebut the argument that the poor do not have access to adequate medical care. Other observers carry the argument farther, suggesting that the poor may use some services excessively (*5, 6*). Problems of overutilization now seem to be of greater concern to many than problems of underutilization.

This shifting focus is not merely the result of increases in utilization rates among the poor such as those noted above. Underlying it are some larger issues and related political agendas. For example, the mounting pressure to control runaway medical care costs and the backlash in public sentiment against Government programs in general and the Great Society programs of the sixties in particular, all point toward cutbacks in public

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funding for health care. If the major access problems are solved—indeed if the problem is now *excessive* utilization—then where better to cut Government funding and involvement than in programs for the poor?

Opponents of universal national health insurance also find the new utilization statistics to be valuable political ammunition. The argument is straightforward: if access problems no longer exist, then the current approach has clearly "worked" and there is no need for a major national program. The explicit intent of Campbell's review, for instance, is to counter "the traditional... arguments for compulsory comprehensive national health insurance" (4). She argues instead for policies which include more "personal responsibility" for health, for the retention—perhaps with the addition of small copayments—of Medicare and Medicaid, and various forms of deregulation designed to increase "competition" among health providers.

It is important to understand the political context in which the "access question" is currently being debated, for the data (contrary to conventional academic wisdom) do not speak for themselves. They are amenable to varying interpretations and lead to widely divergent conclusions. This paper will argue that access problems have not yet been solved, particularly for children. Unequal access is evident in statistics on use of health care, use in relation to medical need, the types of health care sources used, and the degree of difficulty involved in getting care. The sharpest differences, as in the past, are by income and race, although there is also significant variation between rural and urban areas and among different regions of the country.

In reaching these conclusions, the paper reviews existing national data as well as findings from smaller scale studies pertinent to access, and provides new analyses of data from a major national survey (conducted in 1976 by the Center for Health Administration Studies). It also presents new results from a study of different ambulatory care settings in Washington, D.C. that allow detailed analysis of the impact of particular barriers. In all of these data sources, there is evidence of pervasive problems in both the quantity and quality of health care available to the poor and minorities.

Defining Access and Equity

Access can be measured in many different ways. It can refer to the process of gaining access—the distance traveled to the provider of care, the ease of getting an appointment, the office waiting time—or it can refer to the *outcome* of this process—the actual number and type of health care visits that occur, and the patient's satisfaction with the care received. Unmet medical needs are another kind of outcome, indicating inadequate access. Measures of the access *process* reflect directly the degree of difficulty in obtaining care—although the significance of a given access barrier (office waiting time, for example) varies with the urgency of medical need (7). Use measures indicating the *outcome* of access are even more dependent on medical need and vary in relation to the underlying distribution of illness.

Concepts such as medical need and measures of the process and outcome of access cannot be translated into precise empirical terms. Nevertheless, they represent theoretical issues which are essential in defining "equitable access" to health care. Even crude indicators of these concepts are useful in assessing the nature and magnitude of inequalities in access.

In this context, equality, too, is subject to varying interpretations. Most would agree that equal access should not mean absolute equality, with everyone getting the same amount and type of medical care regardless of need. In health care, unlike many other social arenas, there is a compelling case for distributing services (or at least the opportunity for such services) according to need (*8*). Grounds for this case may be pragmatic—with health care viewed as an investment in the health and productivity of the population—or humanitarian—with health care viewed as part of society's commitment to minimal standards of respect and human dignity (*1*). On the other hand, strong partisans of free enterprise argue that health care should be distributed in the same manner as other "consumer goods"—in relation to some measure of individual social worth (usually income) (*9*); but this seems to be a minority view. Equal access to care according to medical *need* has become a widely accepted societal goal. This goal has been made explicit for public programs: the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research recommended in its final report that "eligibility for, and the range of, health services provided under programs conducted or supported by DHEW . . . *should be determined on the basis of the health care needs* of the persons served" (*10*).

THE HEALTH GAP: MORTALITY RATES AND HEALTH STATUS OF POOR AND MINORITY CHILDREN

It is worth calling attention at the outset to who the poor are, for there are some widespread misconceptions.[1] Half of the poor are children under age 22. Two-thirds are white, and more than one-third live in rural areas. They are heavily concentrated in the South, where Medicaid coverage is least adequate (*1*). This inadequacy, along with problems of inaccessibility and other institutional and cultural barriers, is responsible for very low rates of utilization in the rural South and for some of the highest rates of morbidity and mortality in the country.

Mortality

Infant mortality rates remain substantially higher among nonwhites than whites, despite improvements for both. In fact, between 1950 and

[1] In this paper, "poverty" will refer either to the Census Bureau definition of poverty or to the approximate family income equivalent of that level—although this may understate the number of people who live in deprived conditions. For a review of weaknesses in the official measures of poverty, see *11*.

1974, the overall decline has been greater for whites than for blacks (*1*), thus the gap has actually widened. Infant mortality is also strongly related to poverty. The infant mortality rate was 30.2 among residents of poverty areas of 19 large cities in 1969–71, compared with 19.7 in the nonpoverty areas (*12*). That is, rates were 50 percent higher in the poor areas than in the more affluent areas. The compound effects of both race and poverty produce even larger disparities—infant mortality rates among minority residents of the poverty areas were almost double those of white residents of nonpoverty areas (33.4 versus 17.4). There is also great variation in infant mortality rates in different regions of the country. The South, which has the lowest per capita personal income, has the highest infant mortality rates (*13*).

Despite the declining infant mortality rates, there has been no reduction in the proportion of babies born prematurely or with low birth weight over the last 25 years for either blacks or whites (*14*). The prevalence of low-birth-weight infants therefore remains much higher for nonwhites (*15*). The lower infant mortality rates without corresponding improvements in birth weights may be due in part to the better medical care available to disadvantaged populations through federally funded maternal and infant care programs. Assessments of such programs (*16*) and other evidence (*17*) suggest that prenatal care does improve health outcomes.

Mortality rates after infancy also vary by income and race. Racial differences in mortality rates are greatest among children under age 5, with rates among blacks ranging from 1.5 to 2.3 times higher than those of whites (see table 1). These differences exist for deaths due to illness as well as those due to accidents, poisonings, and violence. Racial disparities in mortality rates are much narrower for the 12–17 year age group, and the distribution between illness and other causes varies with age (table 1).

Income-related differences in mortality rates, in contrast, appear to be greater among older children, at least in aggregate data. (No recent national data on individual mortality rates by age and income are available.) Comparing children's mortality rates in the 10 States with the lowest per capita incomes in 1970 and those in the 10 States with the highest incomes, the disparity between low- and high-income States was largest (34 percent) for children aged 5–14 years, and smallest (21 percent) for infants (*18*). Poverty-related differences in children's mortality rates appear to be diminishing, albeit very slowly. For adults, however, the differences have actually widened since 1960.

Disability and Health Status

The best overall measures of general health are disability days and self-assessed health status. These measures indicate the impact of health problems, reflecting their perceived severity as well as the degree to which they interfere with normal activities.

Both children's disability days and reported health status reveal large differences by income. These differences become much more pronounced with age, as the multiple hardships of a life of poverty—including inadequate medical care—take their toll (*12*). In 1977, children under 6 in

TABLE 1. Mortality Rates Due to Medical and Nonmedical Causes for Children 18 Years of Age and Under, According to Race and Age: United States, 1978

	Number of Deaths per 10,000 Resident Population[1]								
	All Causes			Diseases and Health Conditions[2]			Accidents Poisoning, Violence[3]		
Age	White	Black	Ratio: Black/White	White	Black	Ratio: Black/White	White	Black	Ratio: Black/White
Under 1 year	135.6	301.4	2.2	131.4	291.6	2.2	4.2	9.8	2.3
1–5 years	5.8	9.3	1.6	3.2	4.7	1.5	2.6	4.6	1.8
6–11 years	2.9	4.0	1.4	1.5	1.6	1.1	1.4	2.4	1.7
12–17 years	5.9	6.2	1.1	1.7	2.5	1.5	4.2	3.7	0.9

[1]Deaths are coded according to the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States.*
[2]ICDA Nos. 000–796
[3]ICDA Nos. E800–E999

SOURCE: Rice and Danchik, 1979, table 3, data from the Division of Vital Statistics.

the poorest families had almost twice as many bed disability days as those in the highest income category, and a third more restricted activity days (see table 2). Parents' assessments of their children's health mirror these figures. Among the highest income families, 70 percent of children under 17 were reported to be in "excellent" health, compared with only 41 percent of children in the lowest income families (table 3). Findings from clinical examinations reveal the same inverse relation to income as do parental reports. Again race compounds the effects of poverty—black children were reported to be in poorer health than white children regardless of income (*19*).

Another index of clinical illness is hospitalization. In general, the more serious the illness, the more likely hospitalization and the longer the hospital stay (although there are obviously many exceptions to this general rule). As table 4 shows, patterns of hospitalization are very different depending on income and race. For instance, the number of

TABLE 2. Days of Disability Per Child Per Year by Income and Age: U.S., 1977

Family income	Under Age 6		Ages 6 to 16		
	Restricted Activity Days	Bed Days	Restricted Activity Days	Bed Days	School-Loss Days
All incomes[1]	12.3	5.7	10.7	5.0	5.4
Less than $5,000	15.9	9.0	13.0	6.3	6.7
$5,000–9,999	11.3	5.8	11.4	5.3	5.8
$10,000–14,999	11.7	4.9	10.7	4.9	5.3
$15,000–24,999	12.2	5.1	10.6	4.9	5.1
$25,000 and over	12.1	4.7	9.9	4.3	4.7

[1]Includes individuals whose family income is unknown.

NOTE: Data are based on household interviews of the civilian noninstitutionalized population.

SOURCE: Data from the 1977 Health Interview Survey CHAP, p. 30.

TABLE 3. Parents' Assessment of Health of Children Under Age 17 According to Family Income: U.S., 1976 (Percent)

Family income	Level of Health		
	Excellent	Good	Fair and Poor
All incomes	58.8	36.4	4.3
Less than $5,000	41.2	49.9	8.3
$5,000–$9,999	49.7	44.4	5.5
$10,000–$14,999	59.8	35.8	4.1
$15,000 or more	69.6	27.4	2.6

NOTE: Data are based on household interviews of the civilian noninstitutionalized population.

SOURCE: DHEW, *Health: United States, 1978*, December 1978, p. 234.

TABLE 4. Number of Discharges from Short-Stay Hospitals, Number of Days of Care, and Average Length of Stay for Children under Age 17 by Income and Race: U.S., 1977

Family Income and Race	Discharges per 100 Children per Year	Days per 100 Children	Average Length of Stay
All children[1]	6.4	35.6	5.6
Income			
Under $5,000	8.5	66.4	7.8
$5,000–$9,999	7.1	38.0	5.4
$10,000–$14,999	6.7	44.7	6.7
$15,000–$24,999	6.1	29.2	4.8
$25,000 and over	4.8	17.2	3.6
Race			
White	6.5	30.6	4.7
Nonwhite	5.8	60.7	10.5

[1]Includes persons whose family income is unknown.

NOTE: Data are based on household interviews of the civilian noninstitutionalized population.

SOURCE: CHAP, p. 34, data from the 1977 Health Interview Survey.

hospital days per child under age 17 is almost four times as great for those in the lowest income group as in the highest (66 days versus 17 days per 100 children), and average length of stay is more than twice as long for both poor and minority children as for the affluent and white.[2] These data, which are in marked contrast to patterns of ambulatory care, imply that health problems are both more prevalent and more serious among poor and minority children than among others.

Nutritional Deficiencies and Unmet Medical Needs

An important contributor to the poor health of underprivileged children is inadequate nutrition (*20*). In 1974, a third of all black children were estimated to suffer from some kind of nutritional deficiency compared with less than 15 percent of white children (*21*). Deficiencies in six out of eight specific nutrients varied by both income and race: poor black children had more deficiencies than poor white children on all eight measures (*12*). Dietary habits were a likely cause—the daily diet of black children was much more likely than that of white children to include candy, sweetened beverages, and salty snacks (*19*). Such habits may result not only from lack of proper dietary information, but also from limited income and a disrupted family life due to the absence of parental supervision. Almost two-thirds of children with family incomes under

[2]In contrast, hospitalization rates (discharges per 100 children), are slightly lower for nonwhite than white children, perhaps indicating delays in hospitalization. Such delays may account in part for the much longer average length of stay for minority children.

$3,000 in 1974 were living in single-parent families, compared to less than 5 percent of children with family incomes of $10,000 or more (*22*).

What can medical care do about nutritional problems? One thing is to educate people about the harmful health effects of a poor diet, but more direct forms of intervention are also possible. Jack Geiger, a pioneering doctor who organized a clinic in a poverty-stricken area of the Mississippi Delta in the sixties, sometimes prescribed eggs, meat, milk, and vegetables as the best form of medical care that he could offer (*23*).

Certain health problems reveal a direct link between inadequate medical care and higher levels of illness among poor and minority children. For example, as table 5 shows, immunization rates for measles and rubella were lower in poverty areas than in nonpoverty areas, and the prevalence of infections correspondingly higher. Comparable differences have been found between whites and nonwhites (*13*). In a diphtheria epidemic in San Antonio, Texas, poor and minority children suffered 12 times as much disease as children who were white and affluent (*13*).

In addition to disease prevention, various therapeutic needs of disadvantaged children are more likely to go unmet as well. Four times as many poor children under 18 reported some kind of unmet medical needs in 1974 as the most affluent (8.8 percent versus 2.2 percent) (unpublished data from the National Health Interview Survey). While these figures imply relatively low levels of unmet need, certain specific problems, such as uncorrected vision, suggest that actual levels may be higher than those

TABLE 5. Immunization and Infection Status of Children According to Specific Diseases, Metropolitan Status, and Poverty Level: U.S., 1977

Metropolitan Status and Poverty Level	Percent of Children in Each Urban-Poverty Status Group with:			
	Measles (1 to 13 Years)		Rubella (1 to 12 Years)	
	Percent with Vaccination	Percent with Infection	Percent with Vaccination	Percent with Infection
Central cities of SMSA	66	11	64	16
Poverty areas	56	13	58	19
Nonpoverty areas	70	10	65	16
Remaining areas of SMSA	74	9	69	18
Poverty areas	67	11	55	25
Nonpoverty areas	75	9	70	17

NOTE: Percentages are based on population totals which differ within each age category.
SOURCE: CHAP, p. 33, data from the Center for Disease Control.

reported. For example, among children under 6 who needed treatment for eye problems, 92 percent of those in low-income families did not get this treatment; in upper income families, the figure was substantially lower (72 percent), although certainly not ideal (*24*).

In sum, poverty and race are still, as in the past, among the most important risk factors for illness and early death. The joint effects of poverty and race lead to still greater risk. Assessing the overall health needs of children, Julius Richmond, Surgeon General of the U.S., commented: "It may seem odd to include a recommendation for adequate income in a presentation on health. However, as has repeatedly been pointed out, our major child health problems—failure to immunize, infant mortality, undernutrition, development attrition, and development disorders—are all compounded by poverty" (*25*). While the health care system is not likely to redistribute income directly, it could remedy some of the health consequences of poverty. Instead, the current distribution of services tends to exacerbate the existing pattern of poverty-related health problems.

UNEQUAL HEALTH CARE UTILIZATION

Physician utilization by the poor has increased markedly over the last decade, as noted at the outset, a testimony to the success of Medicaid and other public programs in improving access. Yet many inequalities remain. The *likelihood* of receiving care (as opposed to the average number of visits) is still somewhat lower for the poor and minorities (*3*), and there are substantial gaps evident in many measures of children's utilization.

Differential Use

Both the average number of visits and the proportion of children with visits during the year vary considerably by income and race (see tables 6 and 7). Despite higher levels of disability, poor and minority children were less likely to see a physician and had fewer total visits than affluent and white children, respectively. In fact, poor children under 6 were almost twice as likely as the most affluent to have had no physician visits within the year (12.9 percent versus 7.5 percent, respectively, had not had visits). The difference in volume of physician visits by race is also striking—2.9 visits for nonwhite children compared with 4.3 visits for white children. This low volume of visits could be due to access barriers, discrimination, or different patterns of practice for minority children. It is in sharp contrast to the high rates of hospitalization for such children mentioned previously, and may be one of the contributing factors.

Table 8 distinguishes the effects of income and race and shows that each is independently associated with children's utilization. These figures reflect the major improvements in access that have occurred over the last decade, yet they also reveal persisting disparities. In 1976, poor children were still less likely to have seen a doctor than nonpoor children regardless

TABLE 6. Percentage of Children with *No* Physician Visits in the Past Year by Age, Family Income, and Race: U.S., 1977

	Child's Age	
	Under 6	6–16 Years
All Children	11.3	31.4
Family Income		
Less than $5,000	12.9	35.2
$5,000–$9,999	13.4	36.6
$10,000–$14,999	11.0	32.1
$15,000–$24,999	9.2	28.8
$25,000 and over	7.5	24.8
Race		
White	10.7	30.3
Nonwhite	14.3	36.6

NOTE: Data are based on household interviews of the civilian noninstitutionalized population.

SOURCE: CHAP, pp. 37–8, data from the 1977 Health Interview Survey.

TABLE 7. Number of Physician Visits Per Child under 17 per Year by Family Income and Race: U.S., 1977

All children	4.1
Family Income	
Less than $5,000	4.1
$5,000–$9,999	3.4
$10,000–$14,999	4.1
$15,000–$24,999	4.4
$25,000 and over	4.6
Race	
White	4.3
Nonwhite	2.9

NOTE: Data are based on household interviews of the civilian noninstitutionalized population.

SOURCE: CHAP, p. 36–37, data from the 1977 Health Interview Survey.

TABLE 8. Percent of Children under Age 17 with No Doctor Visits in the Past Two Years by Poverty Status[1] and Race: U.S., 1964, 1973, and 1976

	White		Nonwhite	
Year	Poor	Nonpoor	Poor	Nonpoor
1964	28.9	14.1	39.4	24.6
1973	16.8	11.4	21.8	16.9
1976	14.5	10.6	16.3	13.7

[1] Poverty status is based on family income. In 1964, "poor" was defined as incomes under $3,000; in 1973, under $6,000; and in 1976, under $7,000.

SOURCE: Adapted from unpublished data from the Health Interview Survey, Supplemental table 3 to Ronald Wilson and Elijah White, "Changes in Morbidity, Disability and Utilization Differentials between the Poor and Nonpoor," *Medical Care*, August 1977, Vol. 15, No. 8.

of race, just as nonwhite children were less likely to have seen a doctor regardless of poverty status.

Why are the differentials in children's utilization rates greater than those for the population as a whole? The main reason is probably that children's use measures are less confounded by differential illness levels than are measures of adults' use because disparities in illness between rich and poor are generally smaller for children than for adults (*26*). Children's use rates are thus more sensitive to the effects of access barriers and so tend to reflect unequal distribution of such barriers by income and race.

Patterns of use reflect many things—the underlying distribution of illness, the difficulties people face in gaining access to the health care system, their motivation and ability to overcome these difficulties, the incentives of physicians to encourage different kinds of services, and the organizational structure which may or may not accommodate given patterns of care. The impact of these factors varies among different measures of use.

An important distinction is between patient-controlled and provider-controlled measures of use. Patient-controlled measures include preventive visits and the initial decision to seek care in an illness episode, while physician-controlled measures include followup visits, medication, and hospitalization. Patient-controlled measures are more likely to reflect the effects of organizational and financial barriers to access as well as patients' attitudes toward health care. In contrast, physician-controlled measures are generally more closely related to the severity of the illness conditions.[3] This distinction is helpful in interpreting differentials in use, as it begins to suggest possible *reasons* for such differentials.

The distinction between patient- and physician-initiated visits is critical in assessing the impact of access barriers, since these barriers tend to be concentrated among the poor and minorities who also tend to have the highest levels of illness. When patient- and physician-controlled utilization are merged, as in number of visits per year, the negative effects that barriers have on utilization are confounded with the positive effects of illness, obscuring both in the process. (Despite this problem, number of visits per year continues to be the single most widely used indicator of utilization.) When patient- and physician-controlled use measures are distinguished, the effects of both barriers and illness are apparent. Patient-controlled measures generally display a strong *positive* relation to income (*2, 34, 35*), reflecting the greater impact of barriers on the poor. In contrast, clinically mandatory procedures and other indicators of therapeutic need usually show a strong *negative* relation to income, reflecting the disproportionate illness among the poor (*12, 36*).

Some might argue that differential utilization does not necessarily mean inadequate access. For children, however, access can be judged against accepted standards of health monitoring. Most medical authorities agree that children should be examined at least four times during the first year

[3]While various nonmedical considerations do affect physician decisionmaking (*27–29*), patterns of therapeutic care are nonetheless much more likely than patients' initial decisions to reflect clinical severity (*30–32*). Indeed, Zola (*33*) has argued that patients' initial decision to seek care may be virtually unrelated to the clinical severity of the symptoms.

of life, and approximately once every 2 years through age 6 (*37, 38*). If illness visits are also included, a conservative measure of "adequate" care for children might be visits within 6 months for children under age 2, within a year for children aged 2–5, and within 2 years for those aged 6–17.

The proportion of children who do *not* meet this standard again varies sharply by family income, educational level, and race, as seen in table 9. The largest differentials are by educational level. Many studies suggest that formal education affects patterns of utilization independent of income and race, by enhancing general coping skills, and by providing exposure to various social institutions and to mainstream cultural values about illness and medical care (*6, 39*).

Preventive care is even more strongly related to socioeconomic status. For example, five times as many children under 17 in the lowest income group have *never* had a physical exam as in the highest income group (see table 10). Patterns of preventive care reflect both the value attached to preventive services (relative to other uses of time and money) as well as the degree of difficulty involved in getting care. Financial barriers, inconvenience, and sources of care which do not emphasize prevention pose special problems for the poor, as later sections will show. Especially for children, the consequences of undetected medical problems are potentially serious.

Dental care is another glaring example of the maldistribution of preventive services. Among children aged 6–16, 18 percent of those in families with incomes below $5,000 have never been to a dentist, compared with 3 percent of those in upper income families—a sixfold

TABLE 9. Percent of Children under Age 17 with "Inadequately"[1] Frequent Physician Visits, by Family Income, Education, and Race: U.S., 1975–76

All children	14.3
Family Income	
Less than $5,000	17.9
$5,000–$9,999	17.6
$10,000–$14,999	14.5
$15,000 or more	10.6
Education of Head of House	
8 years or less	23.4
9–11 years	17.3
12 years	13.2
13–15 years	9.5
16 years or more	7.3
Race	
White	13.3
Black	19.3
Other	16.1

[1]"Adequate frequency" is defined as within 6 months for children under age 2; within 1 year for children aged 2–5; and within 2 years for children aged 6–17.

SOURCE: Unpublished data from the Health Interview Survey.

TABLE 18. Percent of Children under 17 Years Who Have *Never* Had a Routine Physical Examination, by Family Income and Race: U.S., 1973

All children	9.8
Family Income	
Less than $3,000	20.3
$3,000-$9,999	13.7
$10,000-$14,999	7.1
$15,000 and over	4.4
Race	
White	8.9
Nonwhite	14.8

NOTE: Data are based on household interviews of the civilian noninstitutionalized population.

SOURCE: NCHS 10: 110, 1977, p. 27.

difference (*13*). Dental care is also much less common among black children and those who live in rural areas, especially in the South (*13*). The health consequences of these disparities are evident in the prevalence of dental caries and also in the nature of dental visits. Sixty-one percent of the visits of upper income persons during 1971–74 were for cleaning or checkups compared with 24 percent of the visits of the low-income group (*24*). In contrast, the most common type of dental care among the poor was drastic remedial treatment such as pulling a tooth or other surgery. (Such treatments were five times as common among the poor as among the upper income group.)

Use in Relation to Need

Equity of access to preventive care can be assessed directly from rates of preventive utilization. Equity of access to care for illness, on the other hand, can best be assessed in relation to medical need. There are several ways of doing this: a ratio relating use to need can be calculated; or the effects of varying levels of need can be taken into account statistically by adjusting use rates for health needs. Other indicators of use in relation to need include the proportion of people who saw a doctor after being advised to by friends, and the clinical "necessity" of visits (as judged by physicians). All of these different approaches reveal discrepancies by income and race.

One indicator which was designed to measure medically "appropriate" levels of use relative to need is the symptoms-response ratio (*40*).[4] According to this indicator (adjusted for age and sex), access to health care for low-income groups has improved considerably since the 1960's relative to high-income groups. In 1963, low-income persons had 20 percent "too few" visits relative to their reported symptoms, while high-

[4]This ratio is based on the number of health care visits reported in a household survey in response to the presence of 15 symptoms, compared to the number of visits a panel of physicians says "should" occur for that number and type of symptoms.

income persons had 4 percent "too many." By 1976, all income groups had "too many" visits, although the low-income groups still had fewer visits than the high-income groups (4 percent versus 7 percent too many) (*41*).

While these figures would suggest that the poor are no longer medically deprived, a number of methodological problems cast doubt on the validity of the symptoms-response ratio as a measure of use in relation to need. Since it is used fairly widely, these problems are worth noting. One is that it ignores preventive care needs (*41*). It is also dependent on respondent recognition and reporting of illness symptoms, and people who do not report symptoms are excluded from the computations. Further, it does not reflect the varying severity of symptoms, nor do the physician judgments about appropriate use rates account for the implications of interactions among symptoms or symptom-complexes (*42*). For all of these reasons, the actual degree of illness among the poor may be underestimated by the symptoms reported. If so, physician estimates of "appropriate" use rates for the poor are correspondingly understated, and the symptoms-response ratio provides a misleadingly favorable picture of the poor's use in relation to need.

A more satisfactory measure of use relative to need is the "use-disability" ratio (*40*). In this ratio, the number of physician visits in a given time period is divided by the number of disability days in that period. Functional disability, as noted previously, is the most comprehensive measure of the impact of illness, hence the use-disability ratio is probably a better index of access relative to overall need compared to the symptoms-response ratio.

Like other measures of access, the use-disability ratio reveals disparities by many factors—income, race, region of the country, rural-urban location, and others. Yet poverty is often the dominant factor. For example, comparing the use-disability ratios of selected income, residence, race, and age categories, poverty is the most important overall determinant of use relative to need (see table 11).[5] Race, poverty, and old age together are a devastating combination; the poor urban black elderly had the lowest use-disability ratio of all (3.55), while the more affluent white urban elderly had the highest ratio (21.32)—more than a sixfold difference.

Table 12 shows the use-disability ratios for different income groups in 1963 and 1974–76, based on two separate national samples (NCHS and CHAS). According the CHAS sample, the relative position of the poor has improved since 1963, although low-income persons still had about a third fewer visits in 1974–76 than high-income persons relative to need. In contrast, the NCHS sample indicates no improvement at all in the relative position of the poor. The affluent had twice as many visits relative to need as the poor in 1963 and also in 1974–76.

[5]These data are from the 1970 survey rather than the 1976 survey because comparable categories were not reported for the 1976 data; moreover, all use-disability ratios based on the 1976 data are reported only in age-sex adjusted form.

TABLE 11. Physician Visits in Two Weeks per 100 Disability Days in Two Weeks by Poverty Level by Residence by Race by Age: CHAS, 1970

Characteristic	Use–Disability Ratio
Above poverty level	
Urban, white, 65 and over	21.32
Urban, white, under 65	16.84
Urban, nonwhite, under 65	15.45
Rural, white, 55 and over	15.19
Rural, white, under 65	14.08
Below poverty level	
Urban, nonwhite, under 65	13.07
Urban, white, 65 and over	11.80
Rural, white, under 65	11.03
Rural, nonwhite, under 65	10.13
Urban, white, under 65	9.83
Rural, nonwhite, 65 and over	8.04
Rural, white, 65 and over	7.15
Urban, nonwhite, 65 and over	3.55

SOURCE: Aday and Andersen, 1975, p. 45.

TABLE 12. Physician Visits per 100 Disability Days for Persons of All Ages, by Income Level: U.S., 1963 and 1974–76

Source[1]	Income Level[2]	Use–Disability Ratio Physician Visits[3] per 100 Disability Days	
		1963	1974–76[4]
NCHS	Low	19	20
	Middle	30	31
	High	36	39
CHAS (age and sex adjusted)[5]	Low	40	33
	Middle	66	41
	High	79	46

[1]NCHS refers to National Center for Health Statistics, U.S. Department of Health and Human Services; CHAS refers to Center for Health Administration Studies, University of Illinois, Chicago.
[2]Income groups were defined as follows:
Low: 1963 = 0-$3,999, 1974–76 = 0-$6,499 (NCHS); 0-$7,999 = both years (CHAS)
Middle: 1963 = $4,000-$6,999, 1974–76 = $6,500-$12,999 (NCHS); $8,000-$14,999 = both years (CHAS)
High: 1963 = $7,000 +, 1974–76 = $13,000 + (NCHS); $15,000 + = both years (CHAS).
[3]Both NCHS and CHAS estimates exclude inpatient visits. NCHS estimates include telephone calls to physicians which are excluded in CHAS estimates.
[4]1974 for NCHS; 1976 for CHAS.
[5]Adjusted to the age and sex distribution of the middle-income group in the CHAS sample, 1963.

SOURCE: Adapted from Andersen, 1978, page 461.

This discrepancy between the two samples may be due to various methodological differences between the NCHS and CHAS surveys in specifying disability days. Most notably, the NCHS survey included hospital days in total disability days and the CHAS survey did not. Since hospital days have increased substantially among the poor since 1963 (due largely to improved public coverage), this might result in higher estimates of disability among the poor in 1974–76 in the NCHS sample than in the CHAS sample and, hence, a lower use-disability ratio. (It might also explain why the CHAS use-disability ratios were lower in 1976 than in 1963.) Higher estimates of disability among the poor in the NCHS sample in 1974–76 might suggest that the earlier disability figures were underestimated, but they give no obvious reason to doubt the validity of the 1974–76 NCHS estimates. Indeed, as Andersen (*41*) points out, less comprehensive sickness benefits among low-income workers might even cause their need, as represented by disability days, to be *understated.*

Nor has the position of poor children improved relative to the more affluent, as reflected in their respective use-disability ratios (see table 13). The ratios for nonpoor children were almost 30 percent higher than those for poor children in 1976—exactly the same as in 1964! According to this measure of access relative to need, then, not only are poor children and adults at substantial disadvantage compared with the rest of the population, but their situation has not measurably improved since 1963.

Some contradictory evidence should be noted. Aday and colleagues (*43*) report use-disability ratios based on the same CHAS 1976 survey which show almost no differences by income—in contrast to the sharp income gradient in the ratios reported by Andersen (*41*) (and shown in table 14).

TABLE 13. Physician Visits, Restricted Activity Days and Use-Disability Ratios for Children under 17 Years by Poverty Status: U.S., 1964, 1973, and 1976

Income Level	Year		
	1964	1973	1976
Poor Children[1]			
Visits[2]	2.3	3.8	3.8
Restricted Activity Days	8.2	12.6	12.2
Use–Disability Ratio[3]	28	30	31
Nonpoor Children			
Visits[2]	4.0	4.3	4.2
Restricted Activity Days	11.1	10.2	10.6
Use–Disability Ratio[3]	36	42	40
Ratio of Use–Disability Ratios: Nonpoor/Poor	1.29	1.40	1.29

[1]Definitions of poor and nonpoor are based on family income, and divided at $3,000 in 1964, at $6,000 in 1973 and at $7,000 in 1976.
[2]Visits include all physician visits per year per child under 17.
[3]Use-disability ratios are calculated as the ratio of visits to restricted activity days times 100.

SOURCE: Adapted from unpublished data from the Health Interview Survey, Supplemental tables 4 and 7 to Ronald Wilson and Elijah White, "Changes in Morbidity, Disability, and Utilization Differentials between the Poor and Nonpoor," *Medical Care*, August 1977, Vol. 15, No. 8.

This discrepancy appears to be due to several differences in the way the ratios were calculated. The most significant is that Aday *et al.*, excluded from their calculations people who had no disability days in the previous year and also those who had more than 100 disability days (in order to exclude people whose visits were likely to be preventive and those who had chronic activity limitation, respectively). These exclusions eliminated more than half of the entire sample, probably predominantly people at both extremes of the income range (because people with no disability tend to be affluent while those with a great deal of disability tend to be poor). It is therefore not surprising that use-disability ratios for the remaining subset—which presumably contains a disproportionate number of middle-income individuals—do not reveal large differences by income. However, it is not clear that this finding is as meaningful as the ratios originally reported by Andersen, which are based on the full national sample with no exclusions of people with high or low disability. A sample representing the full spectrum of incomes would seem to provide a more appropriate basis for judging the overall equity of health care distribution in relation to need.[6]

Other ways of measuring use relative to need provide further evidence of differential access. For example, Davis and Reynolds (*45*) adjusted visit rates statistically to account for the more serious health problems of the poor.[7] For most age groups, this adjustment led to a striking change: instead of U-shaped utilization patterns, with the highest rates among the poor and the affluent, visit rates increased uniformly with income. For children, there was very little change: both before and after adjustment,

TABLE 14. Medical Severity Index by Poverty Level and Race: CHAS National Sample, 1976

Family Income and Race	Medical Severity	
	Percent Elective Care/Not a Lot of Worry	Percent Mandatory Care/Causes a Lot of Worry
Family Income		
Less than $8,000	27	30
$8,000–$14,999	26	26
$15,000 or more	33	29
Race		
White	29	25
Nonwhite	26	30

SOURCE: Adapted from Aday *et al.*, 1980, pp. 209–210.

[6]Recent data from Los Angeles are also at odds with the national trends in use relative to disability indicated in tables 12 and 13. Compared with the national figures, the Los Angeles data suggest a greater improvement in the relative position of the poor since 1963 and a much narrower income differential in 1977 (*44*). Again, however, people with no disability days are excluded from the calculations, thus reducing the range of upper-income individuals represented.

[7]Adjusted visit rates for different age groups were estimated from regression equations which included measures of disability and chronic conditions, as well as income level and public assistance (*45*).

poor children had the lowest utilization and visit rates tended generally to increase with income. (Adjustment probably had a smaller effect on children's rates than on adults' because, as noted earlier, the health differentials between rich and poor children are smaller than between rich and poor adults.)

Another measure of use relative to need is the proportion of people who, having been advised by family or friends to see a doctor about illness symptoms, then actually saw a doctor. Although rates for all groups were fairly high, they varied as usual by income and race. People with family incomes below $5,000 were least likely to see the doctor when advised (78 percent), while those with incomes over $15,000 were most likely (88 percent); the figures for nonwhites and whites were 75 percent and 83 percent, respectively. When asked why they did not seek care, both the poor and minorities were far more likely than the rest of the population to cite money or transportation problems. These reasons were given by 14 percent of people with incomes under $5,000, compared with less than 1 percent of those with incomes of $15,000 or more (*3*).

Furthermore, when the poor do seek care, it is more likely to be for medically serious conditions than for elective care. Data from the CHAS 1970 and 1976 national surveys indicate the medical urgency of conditions reported by people with physician visits during the preceding year. Conditions were ranked by an independent group of physicians from "elective and not causing worry" to "mandatory causing a lot of worry."[8] Table 14 compares the percent of "elective" and "mandatory" visits for the poor and nonpoor and for whites and minorities. It is clear that the poor and minorities were generally more likely to have visits rated medically mandatory, while people who were white and not poor were more likely to have elective visits. Further, within every category of race and residence, the poor had less elective care than the nonpoor and more mandatory care (table 15). Race, too, was an independent determinant at least of mandatory care: minorities had a higher percent of mandatory visits than whites for all categories of residence and poverty. Overall, the highest percent mandatory care was for poor minorities living in rural areas while the lowest percent mandatory was for nonpoor whites living in urban areas—the classic pattern.

Summary and a Dissenting View

By most measures of utilization, poor and minority children are still at a disadvantage in comparison to the rest of the population. They have less access to preventive services, get less care relative to health needs, and have more serious illness by the time they do get care.

Not all investigators would agree with these conclusions. Andersen and Aday (*46*) have stated, for example, that "services are generally equitably distributed since age and level of illness are the main determinants of the number of services people receive." But this is a minimal criterion by

[8]These conditions were reported in household interviews but verified in most cases from the medical records. The ranking procedures used by physicians varied somewhat between the 2 years (*40, 43*).

TABLE 15. Medical Severity Index by Residence, Race, and Poverty Level: CHAS National Sample, 1970[1]

Residence, Race, and Poverty Level	Medical Severity	
	Percent Elective Care Only	Percent Mandatory Care Only
Urban		
White		
Above poverty	38	28
Below poverty	34	36
Nonwhite		
Above poverty	45	33
Below poverty	34	41
Rural		
White		
Above poverty	37	31
Below poverty	31	42
Nonwhite		
Above poverty	34	41
Below poverty	33	44

[1]1970 data are used since comparable data are not provided from the 1976 survey.

SOURCE: Adapted from Aday and Andersen, 1975, p. 54.

which to judge equity;[9] a more adequate test would seem to be whether or not the distribution of services varies according to factors such as income or race *in addition to* its relation to age and illness. By such a test, it is less clear that services are now equitably distributed. Although income and race apparently had no significant relation to use independent of various other economic factors, income-*related* factors were strongly associated with use. For instance, after illness, the most important (and highly significant) determinants of visit rates are the availability of a regular source of care, having insurance for doctor visits, and living in an area with a high physician-population ratio—each of which is highly dependent on race, income, and education. These findings thus reveal some of the specific factors which link utilization to socioeconomic status. Rather than showing that equity has been achieved, they indicate some of the reasons why it hasn't!

TWO-CLASS MEDICAL CARE

Equity of access involves not just patterns of health care utilization but also the nature and quality of the services received. In this section, we

[9]In addition to this conceptual problem, the use of annual number of physician visits as a measure of access is also questionable. As noted previously, this measure confounds increased utilization due to illness with decreased utilization due to access barriers, obscuring both effects. This problem is most serious when the aim is, as in the Aday and Andersen study, to analyze trends by income, since both illness and barriers tend to be concentrated most heavily among the poor.

consider some of the more qualitative aspects of access which may underlie differential utilization. Probably the most important of these is the source of medical care.

A Regular Source and a Regular Provider

Many studies have shown that having a regular source increases the likelihood of seeking care, even adjusting for need and other factors (*47*). A regular primary care doctor should, in theory, deliver appropriate preventive care, monitor health status, coordinate a patient's specialty medical services, and in general provide more effective care because of the knowledge and trust built up over time. Data from the CHAS 1976 national survey suggest, in fact, that having a regular source of care is more closely related to access than either poverty or race (*48*) and is also more important in determining whether medically "appropriate" utilization occurs (*40*).

Poor and minority children are much less likely than other children to have a have a regular source of care (*49*). Nationally, 18.1 percent of children with family incomes under $5,000 had no regular source of care in 1974 compared with 5.8 percent of children with family incomes of $15,000 or more, with comparable differences by race (see table 16). Further, among those who did have a regular source, poor and minority children were less likely to have an established relationship with a particular doctor as the regular provider, and still less likely to have such a relationship with a medical specialist.[10]

Different Sources for Different Children

Poor and minority children are not only less likely to have a regular source of care than other children, but the sources they do have are more likely to be hospital clinics than private doctors. In 1974, hospital clinics were the usual source of care for almost 20 percent of all black children and for only 3 percent of all white children (see table 17). Unpublished data from the CHAS 1976 national survey suggest that the figure is even higher for minority children living in urban areas: 28 percent of all nonwhite children under 18 (excluding rural Southern black children) were reported to depend on a hospital outpatient department or emergency room as a regular source. Numerous local studies have found similar patterns of care by income and race (*49, 52, 53*).

The distribution of visits to various sources resembles the patterns of regular sources, with comparable income and racial differences in the use

[10]This is not to imply that all children should see specialists; generalists may provide better primary care than specialists in many cases. There is also evidence suggesting that at least in some settings, specialists may deliver higher quality care overall (*50, 51*). In the absence of conclusive evidence, equity requires that access to medical care—including specialty services—be related to health needs and not ability to pay. Moreover, such access may have symbolic importance, regardless of its impact on health outcomes.

TABLE 16. Percent of Children under Age 18 with a Regular Source, a Regular Doctor, and a Regular Specialist, by Family Income and Race: U.S., 1974

Family Income and Race	Percent of Children with *No* Regular Source	Of Those with a Regular Source: Percent with a Regular *Doctor*	Of Those with a Regular Source: Percent with a Regular *Specialist*
All children	9.7	88.0	36.0
Family Income			
Less than $5,000	18.1	76.8	23.7
$5,000–$9,999	12.5	85.1	30.0
$10,000–$14,999	7.2	90.7	37.0
$15,000 or more	5.8	92.0	43.9
Race			
White	8.4	91.0	37.1
Nonwhite	17.3	69.2	27.2

SOURCE: NCHS, unpublished data from the Health Interview Survey (from M. G. Kovar).

TABLE 17. Percent of Children under Age 18 with Different Regular Sources of Care by Family Income and Race: U.S., 1974

Family Income and Race	Type of Regular Source[1]: Private Doctor	Hospital Clinic	Other
All Children	78.3	5.6	2.9
Family Income			
Less than $5,000	60.9	12.3	5.8
$5,000–$9,999	72.8	7.6	3.9
$10,000–$14,999	82.3	4.4	2.4
$15,000 or more	86.7	2.7	1.5
Race			
White	83.5	3.4	2.4
Black	54.4	18.6	5.9

[1]Excludes children without a regular source or with unknown sources.

SOURCE: NCHS, unpublished data from the Health Interview Survey.

of doctors versus hospital clinics (see table 18).[11] These figures do reveal an interesting difference in patterns of access to telephone contact with physicians: roughly twice as many children who are white and affluent had telephone contacts as those who are black and poor. The vast majority of poor and minority children, in fact, have no telephone

[11]Differences were greater for hospital outpatient departments than for emergency rooms. Outpatient departments were much more likely to be used by the poor, the black, and the central city child, whereas emergency rooms were used to a comparable extent by children of all types (*24*).

TABLE 18. Percent of Physician Visits of Children under Age 18 According to Source or Place of Care, by Family Income and Race: U.S., Average Annual 1975–76

Family Income and Race	Percent of children's visits occuring:		
	In Doctor's Office[1]	In Hospital Outpatient Clinics[2]	By Telephone
All Children	64.0	13.1	17.8
Family Income			
Less than $5,000	55.8	23.0	11.1
$5,000–$9,999	57.4	20.7	13.3
$10,000–$14,999	65.1	12.5	18.3
$15,000 or more	67.1	9.3	20.0
Race			
White	65.3	11.9	18.2
Black	50.9	29.1	8.5

[1]Includes private doctor's office, doctor's clinic, and group practice.
[2]Includes hospital outpatient departments and emergency rooms.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: DHEW, *Health: United States*, 1978, p. 270.

contacts with providers at all. Ninety-four percent of all black children and 88 percent of low-income children had no telephone contacts in 1974, compared with 75 percent and 73 percent for white and high-income children, respectively (*24*). Telephone access provides maximum convenience at minimum cost; not only is advice over the phone usually free, but it may also avert the need for a subsequent office visit. Telephone access plays an especially important role in children's care, as phone contacts with providers are almost twice as common for children's care as for adults' (*54*).

The use of different sources of care stems from a long tradition in the United States of "two-class" medical care, in which the poor use public clinics and hospital emergency rooms and the more affluent use private doctors. Many hospitals still maintain separate "public" and "private" clinics, a vestige of the days when hospitals provided charity care for the poor. As a recent study of Duke University Medical Center found, patients attending the private clinics are typically white and covered by private insurance; those attending the hospital's "public" clinics are predominantly black and on Medicaid (*55*).

Although Medicaid was supposed to bring an end to this dual system of care by giving the poor the financial means to gain access to "mainstream" medical care, in fact just the reverse seems to have happened. The use of hospital-based clinics has been slowly but steadily increasing (*3*), despite the growth of various public programs over the last decade. The mass exodus of private physicians from inner cities along with the seemingly inexorable trend toward medical specialization has left residents of many urban communities with few alternatives. Reliance on hospital clinics as the regular source of care has increased most sharply

among children under age 6—precisely the age group that most needs regular health monitoring and preventive care (*12*). Moreover, the relative position of the poor and minorities has worsened during the last decade with respect to access to nonhospital sources. Low-income groups have had the largest increase in overall use of hospital clinics relative to other sources (*2, 3*), and minorities have had the greatest increase in dependence on emergency rooms and clinics as a regular source (*12*). Thus, minorities remain more dependent on hospital clinics as a regular source of care than any other group (*12*).

Quality, Accessibility, and Continuity

Do these different sources and patterns of care mean that the poor and minorities receive lower quality care? The answer to this question depends largely on how "quality" is defined. If the definition is based on clinical standards of care, the evidence is inconsistent. Brook and Williams (*56*) concluded from a review of the published literature that "the quality of health care for the disadvantaged is not strikingly poorer than care for the nondisadvantaged." They added, however, that "in view of demonstrable shortcomings in the quality of health care in general, this is not viewed as a positive statement."[12]

If the definition of quality is based instead on criteria for primary care, it is clear that many of the institutional settings used predominantly by the poor are deficient.[13] A report by the Institute of Medicine (*59*) listed five attributes of good primary care: accessibility, comprehensiveness, coordination, continuity, and accountability.

Accessibility of health care has been a major problem in many disadvantaged and rural areas. Various public programs such as the Community Health Center program and the Maternal and Child Health Program have made important inroads into problems of accessibility,[14] yet many poor communities remain significantly underserved. Community health centers (including migrant health centers) currently provide care

[12]Some recent evidence suggests that the quality of care in certain hospital-based settings may be higher than that of many solo practitioners. For example, a study of different ambulatory care settings in Washington, D.C. suggests that health outcomes were significantly better for children using pediatric specialty clinics as a regular source of care—both in hospitals and in the prepaid group—than for those using private solo practitioners (*57*). The differences were most likely attributable to the specialized care provided in such clinics, and to the supervision of residents in training in the hospital settings. Reidel and Reidel (*58*), reporting data from the Connecticut Ambulatory Care Study, also found that the performance of hospital-based general practitioners accords more closely with specified medical standards than that of doctors in solo practice—including private internists and pediatricians as well as general practitioners. However, there is no way of knowing nationally how many hospital-based doctors conform to such standards, particularly in clinics that serve as sources of primary care for the disadvantaged.

[13]Notable exceptions include "reformed" hospital outpatient clinics, health department primary care centers, and clinics established under Federal programs for rural and migrant care (*60*). Although expanding, they still play a relatively limited role in the overall needs of the poor and so will not be discussed in any detail here.

[14]In addition to improving accessibility (*61*), these programs have also helped to promote appropriate patterns of ambulatory care use by the poor, and some have succeeded in reducing hospitalization and surgical rates and improving various aspects of health status (*1, 62, 63*).

for about 4.8 million people, mainly in the very poor underserved areas—but this is less than one-fifth of the 26 to 30 million residents of rural and inner city areas estimated to be without a regular source of primary care in the private sector (Office of the Assistant Secretary for Planning and Evaluation–Health).

When financial and structural barriers to access have been removed, utilization has often increased substantially. A good example is a study by Snyder and colleagues (*64*) comparing patterns of use in migrant workers' camps in California before and after medical clinics were established in the camps. The clinics were open during nonworking hours, they were close by, and the care was free: access barriers were essentially eliminated. The impact on utilization was dramatic. The percent of reported illness for which care was received rose from 43 percent before the clinics were open to 70 percent afterward, with even greater increases in the use of preventive care.

Various studies of experimental programs in which poverty populations were enrolled in prepaid group practices have shown that, after initial surges, use rates of the low-income enrollees dropped to levels comparable to, but not below, regular plans' membership (*65–67*).[15] In other programs that have succeeded in eliminating both financial and organizational barriers, use rates among upper and lower income people have been generally similar (*68, 69*). Based on the utilization levels of a group of poverty-level families enrolled in the Kaiser prepaid group practice, Greenlick and colleagues (*70*) concluded that "much of the reported difference in the behavior of poverty populations relates to differential access to medical care."

The impact of access barriers is also evident in lower rates of utilization in settings with multiple barriers—often sources used predominantly by the poor. For example, a study of ambulatory care in Washington, D.C. found that low use rates among the poor could not be adequately explained by financial or attitudinal factors without considering as well the barriers and other inadequacies in the health care settings used by the poor (*72*). Another study based on the same data identified the net impact of different settings on patterns of use (adjusting statistically for patient factors) and revealed significant differences (*52*). Table 19 shows the basic results of this study—the adjusted use rates for patients with different regular sources of care. The boxes highlight consistent patterns in the findings. Preventive care was lowest in the hospital outpatient departments and emergency rooms, where access barriers were substantial. There were fewest barriers generally in the prepaid group clinics, which in turn had the highest rates of patient-initiated preventive and therapeutic care. The fee-for-service groups had the highest volume of followup services, due presumably to the combined incentives of multispecialty group practices and fee-for-service reimbursement.

[15]Not all programs follow this pattern; data comparing use rates of Medicaid and non-Medicaid enrollees in the Health Insurance Plan of New York, a large prepaid system, indicated higher use rates among the non-Medicaid (upper income) members (*71*). Low use rates by the Medicaid members might result from nonfinancial barriers or, as the authors note, might reflect a skewed distribution of care *within* the Medicaid population, with extremely low use rates for a small fraction of this group.

TABLE 19. Adjusted Use Rates in the Different Ambulatory Care Settings: Rates Predicted for a Typical Person or Family: Washington, D.C. Sample, 1971

	Usual Source of Care				
	FFS Solo Practice	FFS Groups	Prepaid Group	Public Clinics	Hospital OPD/ER
PATIENT-CONTROLLED					
Adjusted Preventive Use Rates					
Number of *respondent's* checkups (0,1,2)	1.73	1.74	1.83	1.57†	1.54†
Frequency of *children's* checkups (1 = never, to 4 = every 6 months)	2.46	2.68†	3.07*	2.73*	2.16*
Adjusted Probability of Initiating Care					
Probability of any visits to usual provider in last 6 months by *adult* (0–1)	0.31	0.37	0.48*	0.14*	0.21†
Probability of any visits to usual provider in last 6 months by *child* (0–1)	0.70	0.67	0.86*	0.74	0.75
Probability that *child* ever had a hearing test or ear examination (0–1)	0.48	0.48	0.73*	0.49	0.48
Probability that *child* ever had a vision test or eye examination (0–1)	0.38	0.40	0.59*	0.33	0.33
Probability that *child* saw doctor for past ear problems (0–1)	0.75	0.81	0.94†	0.86	0.84
PHYSICIAN-CONTROLLED					
Adjusted Probability of Medication					
Probability that medication was prescribed to *family* in last 6 months (0–1)	0.75	0.77	0.74	0.71	0.78
Adjusted Followup Rates					
Number of followup visits/condition to usual provider by *adult* in last 6 months	3.9	4.5	3.8	3.2	2.4†
Number of followup visits/condition to usual provider by *child* in last 6 months	0.9	2.2†	1.7	1.1	1.8†

NOTE: Use rates were calculated using specified values for all of the personal and family characteristics listed in appendix B times the estimated regression coefficients. For further detail, see Dutton, 1979.

All significance statistics pertain to the differences estimated between each of the systems compared with *solo practice*; * indicates $p<0.01$ ($t \geq 2.58$) and † indicates $p.<0.10$ ($t \geq 1.64$).

SOURCE: Dutton, D. B. "Patterns of Ambulatory Health Care in Five Different Delivery Systems," *Medical Care*, Vol. XVII, March 1979.

Some differences between children and adults in these results are also of interest. Adults' access to care was lower in the hospital and public clinics than in any other setting, whereas for children using such clinics, access to most services was relatively high. A similar pattern is also evident in national data: among children using hospital clinics as a regular source of care, use relative to disability is quite high (61 visits/100 disability days); the ratio for adults using these clinics is much lower (23 visits/100 disability days) (unpublished data from the CHAS 1976 survey). As in the Washington sample, however, these national data show that rates of preventive care were lowest among children using hospital clinics as a regular source: 25 percent reported having had a voluntary physical examination in the last year compared with 27 percent of the children using private doctors and 29 percent of those using other sources.

Not only is access more difficult in many of the settings used by the poor, but the patterns of care that follow are often disorganized and uncoordinated. It is not uncommon, for example, for poor families to depend on one public clinic for well-child services, on another clinic for maternity care, and on the emergency room for acute care. Dual usage of public and hospital clinics, as well as more complicated patterns of care, has been extensively documented (*47, 73–77*). Table 20, based on an assessment of child health services offered under EPSDT and the Maternal and Child Health Program, vividly illustrates these complex patterns. Only 23 percent of the low-income mothers interviewed used a single provider setting for both sick and well care; almost as many (22 percent) reported no regular source at all (or only the emergency room), and 40 percent reported using multiple different providers for sick and well care. Ironically, it is the fragmentation of the public programs themselves that fosters these inefficient and ineffective patterns of care. Particularly for the poor, who may lack the education and experience necessary to cope effectively with complex bureaucracies, such patterns are likely to be a major obstacle to continuity of care.

Coordination and continuity of care are especially important in facilitating patients' access to comprehensive specialty services characteristic of hospital-based care, yet are relatively rare in such settings. Services in hospital clinics are typically episodic and disease oriented, with little coordination among the various specialty clinics, let alone with outside agencies. Continuity may be equally limited in some public clinics, due to the narrow range of services offered and to lack of coordination among funding programs. Such patterns are evident in table 21, which compares various measures of continuity in different ambulatory care settings in Washington, D.C. The proportion of "regular" patients indicates that, consistent with national data, hospital clinics are serving as the major source of care for their predominantly low-income patient clientele. This is no guarantee of continuity, however. Sharing patients—a policy that often undermines continuity—was much more common in the hospital and public clinics (along with the prepaid group) than in the two fee-for-service settings. An overall measure of continuity, the number of visits to the regular source as a proportion of total visits, also indicates relatively low continuity among patients of the hospital outpatient departments and public clinics (and also solo practitioners).

TABLE 20. Patterns of Multiple Source Utilization by a Sample of Low-Income Mothers

Utilization Pattern	Sources[1] used for: Sick Care	Well Care	Number of Mothers	Percent
One provider type (or one plus ER) for both sick and well care	PP	PP	17	5
	PP, ER	PP	25	8
	CHC	CHC	10	3
	CHC, ER	CHC	6	2
	OPD	OPD	5	2
	HD, ER	HD	9	3
Subtotal			72	23
Different single providers (or single provider plus ER) for sick and well care	PP	HD	15	5
	PP, ER	HD	12	4
	PP	CHC	11	3
	PP	HD	5	2
	OPD	HD	3	*
Subtotal			46	15
Multiple different providers for sick and well care	PP, CHC, ER	CHC	5	2
	PP, CHC, ER	PP	5	2
	PP, OPD, ER	PP	5	2
	PP, OPD, ER	OPD	4	1
	PP, HD, ER	HD	4	1
	PP, ER	PP, HD	4	1
	CHC, OPD, ER	CHC	3	*
	PP, OPD	HD	3	*
	OPD, HD, ER	HD	3	*
(seventy-five other combinations)			91	29
Subtotal			127	40
No source or ER only for sick care or well care or both	ER	none	7	2
	ER	HD	7	2
	ER	CHC	5	2
	ER	PP	5	2
	none	HD	5	2
	PP	none	9	3
	PP, ER	none	6	2
	OPD, ER	none	5	2
	PP, CHC, ER	none	4	1
	OPD	none	4	1
	PP, OPD	none	4	1
	CHC, ER	none	3	*
	HD	none	3	*
	none	none	4	1
Subtotal			71	22
TOTAL			316	100

*Less than 1 percent

[1]Sources identified as follows: OPD = Hospital Outpatient Department; PP = Private Physician; ER = Hospital Emergency Room; HD = Health Department; CHC = Community Health Center.

NOTE: Sample of 316 low-income mothers was selected from 16 States to ensure a mix of provider arrangements and availability, as well as geographical and ethnic variety of clients.

SOURCE: Adapted from U.S. DHEW, Office of Inspector General, "Child Health Care—EPSDT and MCH: A Service Delivery Assessment" (Alan Meyer, Project Leader), November 1979, Appendix III.

TABLE 21. Indicators of Continuity of Care in Different Ambulatory Care Settings: Washington, D.C., 1971.

Indicators of Continuity	Usual Source of Care					
	Fee-for-Service					
	Solo Practice	Group Practice	Prepaid Group Practice	Public Clinic	Hospital Outpatient Department	Hospital Emergency Room
Percent of physicians reporting *majority* of patients are "regular" users	74	81	100	58	100	100
Percent of physicians who share patients	4	26	70	50	68	100
Number of visits per person to regular provider as a proportion of total visits	58	71	87	60	62	72

SOURCE: Dutton, unpublished data.

The degree of continuity and coordination affects not only the volume and types of services but other aspects of care as well. Continuity appears to have a wide range of benefits, including fuller understanding of patients' problems by physicians (*78*), greater patient and physician satisfaction (*79*), and more efficient patterns of care. Hospital-based pediatric services that have been reorganized to provide (among other things) greater continuity of care have demonstrated such advantages. For example, Alpert *et al.* (*80*) reported that children receiving the reorganized primary pediatric services had fewer hospitalizations, operations, illness visits, and unkept appointments compared with control children receiving traditional episodic care; experimental children also had more preventive visits, higher levels of patient satisfaction, and lower costs. Breslau and Haug (*81*), studying a reorganized pediatric clinic, also found evidence that continuity allows lower rates of patient visits (which meant lower patient costs) because of more telephone communication with physicians and greater patient trust.

Provider Communication and Patient Satisfaction

Effective communication between patients and providers is an essential component of good primary care, one that is frequently lacking. Insufficient information provided by doctors is the third most common complaint about medical care, after cost and inconvenience (*82*).

A precondition for effective communication is adequate time for patient visits. Again, the poor who rely on hospital clinics are likely to be at a disadvantage. Such clinics are typically crowded and busy, and physicians have little time to spend counseling patients or offering preventive services (*83*). Visits are frequently rushed. A study in Montreal that compared the length of patient visits in doctors' offices with hospital clinic visits found that for general practice and internal medicine the average time spent with physicians was almost twice as long in the private offices as in the clinics (*84*). National data indicate that people seen in hospital emergency rooms were twice as likely to say that doctors did not spend enough time as those seen in physicians' offices or those who had telephone contacts (table 22). The poor and minorities were also more likely to feel that not enough time was spent. Yet the actual time per visit (as reported in the CHAS national sample) was slightly longer among the poor and minorities (see the right-hand column of table 22): more low-income than high-income people, and more nonwhites than whites had visits that lasted longer than 25 minutes.

This apparent paradox has several possible explanations. The data come from two different samples that may represent somewhat different groups. The NCHS data pertain to experiences at the site where acute conditions were first treated, whereas the CHAS data were based on the regular source of care. On the other hand, there may be no paradox at all. The slightly longer times spent with the poor and minorities may not have been adequate to deal with their frequently more complex health needs. Cultural barriers between doctors and patients from different social backgrounds may have further contributed to patient perceptions that doctors spent insufficient time with them.

TABLE 22. Opinions about Time Spent with Doctors for Care of Acute Conditions and Reported Usual Duration of Visits, by Family Income, Race and Medical Settings: U.S., 1973–74 and 1976

	NCHS: 1973–74[1]	CHAS: 1976[2]
	Percent of Those with Acute Conditions Reporting that Doctors Did Not Spend Enough Time	Percent Reporting Usual Duration of Visits of 25 Minutes or More
All persons	6	20
Family Income		
Less than $5,000	9	22[3]
$5,000–$9,999	5	—
$10,000–$14,999	6	19
$15,000 or more	6	18
Race		
White	6	19
Nonwhite	7	26
Medical Setting		
Doctor's office	5	19
Telephone	4	NA
Hospital emergency room[4]	10	27
Other place	10	21

[1]The NCHS sample is based on average annual incidence of medically attended acute conditions with known appointment status at site of first medical contacts: U.S., 1973–74.
[2]The CHAS sample is based on a sample of the U.S. population; data on appointment lead times were reported about the individual's *regular* source of care.
[3]These figures are based on the three income categories reported in the CHAS sample: 0-$7,999; $8,000-$14,999; and $15,000 or more.
[4]Also includes outpatient departments in CHAS sample.
NA = not available.

SOURCE: Adapted from NCHS 10:129, 1979, p. 27; from Aday, *et al.*, 1980, pp. 92, 93; and from unpublished data from the CHAS 1976 survey.

Interestingly, the duration of visits appears to be a critical factor in determining how satisfied patients are with their overall care. A study was done to show the relationship between usual duration of visits and people's satisfaction with various dimensions of access, based on data from the CHAS 1976 sample. People reporting longer visits were consistently more satisfied with every dimension of access. For quality of care, there is almost a 20-percentage point difference between those with the shortest and longest visit lengths. Yet even though low-income individuals reported the greatest proportion of long visits, as noted above, they were *less* satisfied on the average than people with higher incomes about all aspects of care.

A less tangible—but not less real—barrier to adequate communication in hospital clinics may be the general atmosphere: an impersonal and alienating atmosphere can be detrimental to relationships between patients and physicians (*47, 52, 83, 85, 86*). In the Washington, D.C. sample, the hospital clinics were unique among the six medical settings in that not one physician reported being satisfied with "most or all" patients

on various aspects of personal behavior, and patient satisfaction with physicians was also low (*52*). Such attitudes make effective communication unlikely.

National statistics reveal high levels of patient dissatisfaction with hospital clinics, particularly emergency rooms. In the CHAS 1976 national survey, 71 percent of people who used emergency rooms as a regular source of care were more "generally dissatisfied" than the national median, 64 percent were more dissatisfied with the "quality of care," and 60 percent were more dissatisfied with doctors' "humaneness" (*43*). Emergency rooms were rated lower than any other setting on all three measures. At the other extreme were private and group physicians, with fewer patients (46 percent) "generally dissatisfied," and fewer dissatisfied with the quality of care and doctors' humaneness (about 47 percent for each).

Accountability

Mutual accountability between patients and providers is a key to good primary care, and may be especially difficult to achieve in health care for the disadvantaged. Major social or cultural differences between patients and providers diminish patients' influence over doctors by means of "voice," and their limited financial resources and restricted alternative sources of care reduce their influence by the threat of "exit" (*87*). Hospital clinics in particular have traditionally been unresponsive to the particular cultural values and special medical needs of poor and minority patients in whose communities they are often located. Instead, such settings reflect the prevailing "culture of medicine," delivering care that is specialized and technologically sophisticated and that requires an increasingly complex bureaucratic organizational structure. As Levine (*88*) and others have pointed out, modern medical care seems often to be more responsive to the needs and interests of professionals and institutions than to the needs of patients.

The failures of organizations in this regard are as varied as the needs and values of the patients they serve. One of the most common problems seems to be inadequate information about available sources of care. Often, the poor are simply unaware of existing sources (*89*). Yet programs of active outreach have shown that it is possible not only to provide better information but also to achieve more appropriate utilization patterns in the process (*65, 90*).

There is a delicate balance in being responsive to patients' unique social and cultural features and yet not creating a sense of stigma. Services that are different from those of the mainstream medical system may be viewed by some patients as inferior. Neighborhood health centers are a good example of this dilemma. Such centers typically offer services tailored specifically to the needs of their communities and many employ community residents as staff members. These policies are responsive to local interests, but they may also conflict with beliefs derived from the larger culture.

A study by Skinner and colleagues (*89*) illustrates such a conflict among patients who chose to use a hospital outpatient department rather than a neighborhood health center, even though the latter was closer. The major reasons that patients continued to use the hospital clinic was its perceived high "quality" of care. Patients who gave highest priority to convenience of access were willing to consider changing to the neighborhood health center; those who emphasized quality of care or familiarity with the site were not willing to change. Yet there was evidence that once the hospital clinic patients had actually had personal experience with a neighborhood health center, they were satisfied with the quality of care they received. Thus, attitudes about what constituted "quality" medical care were the key issue. Popular attitudes are shaped by the prevailing norms in medicine, and as the authors pointed out, "almost all the information about medicine that reaches the public domain—from educational reports to entertaining programs—serves to emphasize the advantages of the medical center with its sophisticated equipment and highly trained staff" (*89*). This kind of publicity has a pervasive influence on public attitudes about quality and is an obstacle to building institutions that are responsive to primary health care needs.

To recapitulate: medical care in the United States is still in many ways a two-class system. Poor and minority children are less likely than their peers to have a regular source of care, a regular doctor, or a regular specialist, and more likely to rely on a hospital-based clinic for primary medical care. Indeed, one of the clear failures of the Medicaid and Medicare programs has been in providing the disadvantaged with access to mainstream medical care through financial means alone: use of hospital outpatient clinics is increasing, especially among the poor and minorities. These clinics typically offer care that, although apparently comparable to that provided in private settings on a technical level, is deficient with respect to the goals of primary care such as accessibility, continuity, communication, and accountability.

BARRIERS TO CARE

In addition to using different sources of medical care than the more affluent, the poor and minorities also face greater financial and organizational obstacles in seeking care. High medical expenses, inadequate insurance coverage under Medicaid or private health insurance, long waiting times in providers' offices, inconvenient office hours, and greater distances to travel are all potential barriers to access. Such factors also reveal how difficult the *process* of gaining access is, regardless of the utilization that results.[16] Some of these obstacles are due to the types of settings used by the poor; others reflect differential barriers within the same settings.

[16]In response to questions about specific access barriers, only 10 percent of the population reported one or more problems in getting care in 1974; by income, the proportion ranged from 14 percent in the lowest income group to 9 percent in the highest group (*91*). However, these relatively low figures should be interpreted with caution, as they are subject to the same bias toward positive responses as satisfaction data (*92*).

Financial Barriers

It is perhaps surprising that financial barriers are still an impediment to the poor in getting care, given the ever-increasing share of the Federal budget devoted to Medicaid and other publicly funded health programs. Yet for many poor and minority females, public coverage is woefully inadequate.

Medical Expenses

The high cost of medical care is the major complaint about medicine today (*93*). In 1975–76, 37 percent of the population expressed dissatisfaction with out-of-pocket medical expenses during the preceding year (*82*). This figure is strikingly high given that responses to questions about satisfaction with personal medical care are usually very positive (*92*). Costs are of special concern to disadvantaged groups—42 percent of the poor expressed dissatisfaction, as did 43 percent of urban blacks, and 44 percent of blacks living in the rural South (*82*).

Costs were also more likely to be a problem for the poor in actually receiving medical care. As noted earlier, many more low-income than high-income persons said they did not get care for acute conditions because of money or transportation problems. Similarly, costs were cited as a problem in getting care during 1974 more than five times as often by the poor as by the most affluent (5.1 percent versus 0.8 percent) (*91*). Costs were also by far the most common reason given for letting poor children's health needs go unmet, mentioned in almost half of the cases (unpublished data from the National Health Interview Survey).

Medical care expenditures were a greater burden for the poor relative to income than for the affluent. During 1975, out-of-pocket health expenses were $223 for persons with annual family incomes below $3,000 (or 11 percent of income) and $257 for persons with annual family incomes above $15,000 (or less than 2 percent of income) (*3*).[17] These figures include people who did not receive any care during the year and those who got care but did not have to pay for it (such as people fully covered by Medicaid or other programs). They therefore probably underestimate the role of costs as a barrier, because some of the poor who did not get care may have been deterred specifically by high costs.

Among people who incurred medical expenses, there were even sharper differences in the distribution of costs relative to income (see table 23). The average annual out-of-pocket health expense for persons with expenses in 1975 ranged from 1.5 percent of family income for people with the highest incomes, to 17.3 percent of income for people with the lowest incomes—a tenfold difference in the costs borne by the poor and by the affluent. Moreover, because a sizable proportion of the poor (65 percent) had some health expenses, these disproportionate costs were spread over the majority of the poor.

[17] These figures are not age-adjusted, even though the low-income group contains a higher proportion of older people than the upper income group, because age adjustment masks the *actual* expenses incurred at different income levels. Actual expenses indicate the real distribution of costs by income, regardless of differences in age composition.

TABLE 23. Average Annual Out-of-Pocket Health Expenses *for Persons with Such Expenses* and Proportion with Expenses, by Type of Expense and Family Income: U.S., 1975.

Family Income	Average Expense in Dollars for Persons with Expenses			Average Annual Expenses of all Types for Persons with Expenses, as a Percentage of Family Income[2]	Percentage of Income Group with *Some* Health Expense During the Year
	Hospital	Doctor	All Types of Expense (Including Insurance premium)[1]		
All persons	264	107	285	2.1	86
Less than $3,000	714	156	345	17.3	65
$3,000–$4,999	457	141	355	8.9	72
$5,000–$5,999	333	120	303	5.6	76
$7,000–$9,999	262	117	282	3.3	85
$10,000–$14,999	239	96	263	2.1	91
$15,000 or more	179	98	275	1.5	93

[1]Expenses include hospital, doctor, dental, prescription medicine, optical, and other expenses.
[2]Midpoints of all income ranges were used to calculate ratios, except $2,000 was used for the less than $3,000 range, and $18,000 was used for the $15,000 range. The figure for average family income for all persons in 1975 was $13,779 (from U. S. Bureau of the Census, *Statistical Abstract of the U.S., 1976*, Department of Commerce, 1976, p. 412).

SOURCE: Adapted from NCHS 10:122, 1978, pp. 27, 31, 33.

As these figures imply, there are major gaps in both public and private insurance coverage of health care expenses. Insurance for children's care is particularly inadequate—children under 17 have less coverage than adults for most types of expenses (table 24). Fewer than half of all children under age 6 were covered for ambulatory services, the most important form of care for children. Moreover, this insurance offered limited protection, covering less than 20 percent of private expenditures for children's visits in 1970 (*94*).

The proportion of people with coverage for outpatient visits also varies widely by income, race, and region of the country. The lowest rate of coverage (38 percent) occurs among people who are poor, of Spanish heritage and live in the Southwest, and the next lowest rate is for poor rural Southern blacks (41 percent) (*43*).

Many of the poor are dependent on public programs such as Medicaid for coverage. The affluent are more likely to have private insurance coverage (see table 25). Despite Medicaid, however, coverage is still least adequate where it is most needed—among the poor. As table 25 shows, the lower the income level, the higher the proportion with no health care coverage.

For children under 18, the association with income was even stronger—the proportion with no health care coverage ranged from 27 percent among children in families with incomes less than $7,000 to 4 percent for children in families with incomes of $15,000 or more.

Overall, it is estimated that only about half of the poverty population is covered under Medicaid at any one time, due to eligibility restrictions and other factors (*1*). This would mean that at a given time in 1978, 12.5 million poor people, including *5 million poor children*,[18] were not covered under Medicaid. The means test for determining eligibility is degrading

Table 24. Percent of the Population with Selected Types of Health Insurance Coverage by Age: CHAS National Sample, 1976.

Type of Coverage	Percent of Age Group with Each Type: 1–5 Years	6–17 Years	18–64 Years	65 Years or More
Outpatient visit coverage	49	51	53	90
Outpatient drug coverage	38	33	38	26
Hospital coverage	84	87	87	99
Surgical coverage	83	86	86	95
Major medical coverage	51	59	60	32
Dental coverage	19	20	20	3

SOURCE: Adapted from Aday *et al.*, 1980, p. 87.

[18]This estimate is based on data from the Census Bureau (*95*) on the number of "related" children under age 18 living in families under the poverty level in 1978 (9,722,000), adjusted for families' movements in and out of Medicaid eligibility.

TABLE 25. Type of Health Care Coverage Status According to Family Income and Race: U.S., 1976

Family Income and Race	Percent of Population with: Private Insurance or Medicare	Medicaid[1]	Other programs[2]	No Insurance
All persons	79.6	5.8	2.4	11.0
Family Income				
Less than $3,000	51.0	24.4	1.4	21.8
$3,000–$4,999	55.4	20.9	1.2	21.3
$5,000–$6,999	62.8	12.4	2.6	21.0
$7,000–$9,999	75.8	4.5	3.5	15.1
$10,000–$14,999	86.8	1.6	2.9	7.7
$15,000 or more	92.3	0.6	2.2	4.1
Race				
White	82.5	3.8	2.4	10.2
All other	60.7	19.0	2.6	16.3

[1]Persons with high incomes can qualify for Medicaid in at least two ways: (1) previous year's income is employed, yet family dissolution or catastrophic illness could have occurred in the survey year causing Medicaid use or eligibility; (2) in certain States, large families with incomes in excess of $15,000 could qualify for Medicaid coverage.
[2]Includes military, Veterans Administration, private surgical coverage, and professional courtesy.

SOURCE: U.S. DHEW, *Health U.S., 1978*, p. 404.

and probably deters many from applying; others may qualify only after their financial resources have been depleted by illness.

Medicaid coverage varies widely from State to State, reflecting different States' policies on financial eligibility, range of services covered, and benefit limits. In most States, Medicaid does not cover any of the indirect expenses related to illness, such as the costs of transportation to the doctor, a babysitter for children left at home, and time lost from work. Benefit levels are lowest in the South. In 1970, Medicaid payments per child recipient were $43 in Mississippi compared with $240 in Wisconsin (*96*). Eligibility is also much more limited in the South. Most States in the deep South cover only about one-tenth of poor children, whereas States in the Northeast cover nearly all poor children and near-poor (those just above the poverty line). Comparing coverage among the poor living in five low-income urban areas around the country, Okada and Wan (*97*) found that the percent with no third-party coverage (public or private) ranged from a low of 8 percent in Roxbury, Massachusetts, to a high of 38 percent in Peninsula Charleston, South Carolina.

Levels of Medicaid benefits are also unevenly distributed among different categories of recipients. For example, children get much lower average benefits than adults. Children under age 21 comprised almost half of all Medicaid recipients in 1976, yet received only 17 percent of total Medicaid benefits (*13*). Most of this difference was probably because children were ill less than adults, and because nursing home care for the elderly is very expensive. Other differences are more difficult to explain. For instance, blacks get lower average payments than whites (although the disparities are much larger among adults than children). In 1974,

Medicaid payments to persons under age 21 averaged $130 for whites and $116 for blacks (*12*). Some of the largest discrepancies are by geographic region; residents of rural areas get much lower average benefits than urban residents. In 1970, children in families with incomes below $6,000 living in rural areas had only 10 percent of their medical expenses covered by Medicaid, compared with 75 percent for such children living in central cities (*96*). Moreover, a growing number of private physicians are refusing to accept Medicaid patients. A recent survey in Mississippi found that more than half of all physicians providing direct patient care did not see Medicaid patients (*98*). The reason most commonly cited was inadequate fees.

In short, financial barriers are still considerable for many of the poor in large part because Medicaid coverage varies widely, benefits are unevenly distributed, and eligibility restrictions exclude large numbers of the poor entirely.[19]

Financial Barriers in Different Settings

The irony of Medicaid's inadequate coverage is that hospital clinics, used increasingly for primary care by the poor, are among the most expensive sources of medical care. Table 26 shows the average charges in

TABLE 26. Average Charge for Ambulatory Visits of Children under 19 and Insurance Coverage by Medical Settings: U.S., 1976–77.

	Average Charge for Ambulatory Visits of Persons under Age 19[2]	Percent of patients with:[1] Private Insurance (group or individual policy)	Medicaid or Reduced Price Care	No Insurance
All ambulatory visits	19.47	83	6	11
Medical Setting				
Doctor's office	17.28	85	5	10
Hospital outpatient clinic	50.69	62	19	19
Hospital emergency room	41.16			
Other and unknown settings	22.68	62	17	22

[1]Adapted from Aday and Andersen (1978), p. 371, 373, and unpublished data are from the CHAS 1976 national sample.
[2]From Walden and Rossiter (1979), Table 4. Data are from the National Medical Care Expenditure Survey, NCHSR, first quarter 1977.

[19]Although the Medicaid program is plagued with many problems, other provisions for easing the financial burden on the poor, such as the Hill-Burton Act and State tax exemptions for "charitable" institutions (under section 501(c)(3) of the Internal Revenue Code), have proven equally inadequate, due to problems of enforcement, ambiguous standards, and the absence of defining regulations (*99*).

1976 for pediatric visits in different medical settings and the proportion of patients with different types of financial coverage (including no coverage). Average charges in the hospital outpatient clinics were more than double those in private doctors' offices ($50.69 versus $17.28), yet 19 percent of the patients using the hospital clinics (almost one out of every five) had no insurance coverage at all. Another 20 percent were at least partially covered by Medicaid or received care at a reduced price, but probably still had to pay some portion of the charges out-of-pocket. Initial visits were often not covered—38 percent of the people using hospital clinics as a regular source of care said they had to pay for the first visit to the provider during a given year (unpublished data from the CHAS 1976 national survey). Similar disparities are also revealed in local studies (*52*).

The cost of hospital outpatient services is often exorbitant compared with private doctors, and, because many of the patients are on Medicaid, the Government foots much of the bill. The result is, as Haynes and McGarvey put it a decade ago, that "the government is worried, the private physicians are dissatisfied, the hospitals are abused, the taxpayers are resentful, and the patients suffer" (*100*). They commented that "if some genius of a devil had expended his best efforts in contriving some situation which would achieve the maximum dissatisfaction for all concerned, he could not have achieved more spectacular results."

The Impact of Financial Barriers on Access

There are numerous studies of the impact of financial factors on patients' use of health care (*101–111*). Such factors include insurance coverage, coinsurance rates, deductibles, copayments, patients' income level, and the price of care (physicians' charges or out-of-pocket costs). Regardless of the models or methodologies employed or the types of medical settings studied, the findings with respect to price are quite consistent (and not too surprising): higher prices lead people to purchase less medical care. However, attempts to specify the "price elasticity" of demand for medical care (the reduction in use caused by an increase in the price of care) have produced widely varying estimates. Studies reviewed by Schweitzer (*101*) suggest that utilization is rather responsive to changes in price. Research by Phelps and Newhouse (*105, 106*) implies that use rates are relatively insensitive to price changes. In general, physician visits appear to be more responsive than hospitalization to changes in price or coinsurance rates (*105, 112*).

Data from "natural experiments" confirm the negative impact of higher prices on ambulatory care. For example, when copayments of about 33 percent were introduced in the province of Saskatchewan, use of physician services declined by about 6 percent (*113*). The introduction of a 25-percent coinsurance rate in a large California medical clinic caused a similar reduction in physician visits (*114*). Even California's 1972 "copayment experiment" imposing a $1 charge on certain Medicaid recipients lowered ambulatory care utilization (*115*). Although physician visits declined by about 8 percent in the experiment, hospitalization rates apparently rose by 17 percent, resulting in an overall increase in program costs (*116*).

The protective effects of insurance also provide indirect evidence that medical costs inhibit utilization among those who are not insured. For example, a recent study in Baltimore suggests that it is now the near-poor, most of whom are ineligible for Medicaid, who have the lowest rates of use (*117*). The likelihood of children's visits appears to be especially dependent on insurance coverage. The differential between those with coverage and those without was twice as large for children as for adults: 77 percent of children under 18 who were insured saw a doctor in 1976 compared with 57 percent for those with no insurance; the corresponding figures for adults are 79 percent versus 69 percent (unpublished data from the CHAS 1976 survey). There were comparable differentials in children's preventive care as well.

One would expect the poor to be more sensitive to prices than the more affluent because a given cost constitutes a larger proportion of the income of poor families. Although some sociological research supports this expectation (*118*), there has been surprisingly little economic research on the issue. Ghez and Grossman (*119*) provide some indirect evidence against such a differential effect, but their findings are not conclusive.[20] A recent report by Barer, Evans, and Stoddart (*112*) provides evidence that the poor are indeed more price sensitive than the affluent, based in part on a series of studies by Beck (*120–122*). Analyzing the effects of the $1.50–$2.00 copayment for physician visits introduced in Saskatchewan in 1968, Beck found that the largest response (estimated to be an 18-percent reduction in utilization) occurred among aged and low-income groups—three times that of the 6-percent reduction overall. In fact, visit rates among some people in the middle-income group actually appeared to have *increased* in response to the copayment (*112*). Thus, because of the differing levels of price sensitivity, the copayments served to redistribute services from the poor to the affluent.

National data on use in relation to insurance coverage also suggest greater sensitivity to prices among the poor. Both the insured poor and the insured nonpoor had higher rates of use than the uninsured, but the size of the differentials was substantially greater among the poor for all three measures of use. In other words, without the shield of insurance coverage, prices had a greater impact on the poor. With insurance, in fact, the proportion of people with physical examinations and physician visits was about the same for the poor as for the nonpoor, whereas it was much lower for the uninsured poor.

Organizational and Time Barriers

The poor also face a variety of nonfinancial obstacles in seeking care, many of which involve time and inconvenience. The uneven distribution

[20] They compare price elasticity estimates derived from three different samples with the mean income of each sample, assuming that if there is a differential impact by income the elasticities will be lower in the samples with higher mean incomes—which they are not. This evidence is only speculative, however, for estimates of price elasticities are quite variable and the three reported are well within the usual range of variation (*105, 106*); also, because the estimates are from different samples they may be affected by many factors besides income, both observed and unobserved.

of such barriers is another indication of the present "two-class" system of care.

Travel Time and Office Waiting Time

On the average, the poor and minorities spend longer getting to the doctor than other people, as do residents of rural areas. As table 27 shows, based on two different national samples, from 10 to 20 percent of each of these groups travels 30 minutes or more. Estimates of travel times to different medical settings varied considerably between the two samples, probably because the settings referred to in the CHAS sample were the regular source of care whereas in the NCHS sample they were the first site of care for acute illness.[21]

TABLE 27. Travel Time to Source of Medical Care by Family Income, Race, Medical Setting, and Location: U.S., 1973–74 and 1976

	Percent with Travel Time of 30 Minutes or More:	
	NCHS: 1973–74[1]	CHAS: 1976[2]
All persons	15	9
Family Income		
Less than $5,000	19	12[3]
$5,000–$9,999	17	—
$10,000–$14,999	14	9
$15,000 or more	13	6
Race		
White	15	9
Nonwhite	21	11
Location		
Urban (all SMSA)	14	7
Rural nonfarm	23	14
Rural farm		15
Medical Setting		
Doctor's office	16	8
Hospital outpatient or emergency room	13	22
Other clinic	16	8

[1]The NCHS sample is based on average annual incidence of medically attended acute conditions with known travel times to site of first medical contact: U.S., 1973–74.
[2]The CHAS sample is based on a sample of the U.S. population; data on travel times were reported about the individual's *regular* source of care.
[3]These figures are based on the three income categories reported in the CHAS sample: 0–$7,999; $8,000–$14,999; and $15,000 or more.

SOURCE: Adapted from NCHS 10:129, 1979, p. 25; and adapted from Aday, *et al.*, 1980, p. 58; and unpublished data from the CHAS 1976 survey.

[21]Thus, in the NCHS sample, the hospital clinics serving as the site of first contact were probably those closest at hand. In the CHAS sample, those that served as regular providers were apparently relatively far away from where patients live (as table 27 shows, more than a fifth of the patients had to travel over a half hour).

Longer travel times for the poor and minorities reflect various factors—the dependence of such groups on less efficient forms of transportation, and the scarcity of physicians in poor, inner-city, and rural areas (*123–126*).[22] When the affluent travel long distances, it is more likely to be in order to get specialized care (*49, 127*). For the poor, long travel times are often less a matter of choice than of necessity (*128*).

Long waiting times in doctors' offices are another major inconvenience, and a source of considerable public discontent. In a recent national survey, 28 percent expressed dissatisfaction with this aspect of their medical care during the past year (*82*). The highest levels of dissatisfaction with waiting times are generally found among the poor and minorities (*3*). Prolonged waiting times were the foremost complaint of the patients using the clinics of a teaching hospital in New Jersey (*129*). (The authors of this study also noted that patients often equate quality of care with rapidity of services.) That the poor and minorities are dissatisfied with waiting times makes a good deal of sense: as table 28 shows, they are more than *twice* as likely as others to wait an hour or longer at their regular source of care (CHAS sample), and they also wait considerably longer to get care for acute conditions (NCHS sample).[23]

TABLE 28. Office Waiting Time by Family Income and Race: U.S., 1973–74 and 1976.

Family Income and Race	Percent with Office Waiting Time of 1 Hour or More:	
	NCHS: 1973–74[1]	CHAS: 1976[2]
All Persons	21	13
Family Income		
Less than $5,000	27	21[3]
$5,000–$9,000	21	—
$10,000–$14,000	21	12
$15,000 or more	17	9
Race		
White	20	12
Nonwhite	26	22

[1]The NCHS sample is based on average annual incidence of medically attended acute conditions with known office waiting times at site of first medical contacts: U.S., 1973–74.
[2]The CHAS sample is based on a sample of the U.S. population; data on office waiting time were reported about the individual's *regular* source of care.
[3]These figures are based on the three income categories reported in the CHAS sample: 0–$7,999; $8,000–$14,999; and $15,000 or more.

SOURCE: NCHS, 10: 129, 1979, p. 25; and adapted from Aday, *et al.*, 1980, pp. 66, 67.

[22]A report by the National Research Council (*22*) attributed this scarcity first to lack of sufficient patients who can afford to pay for physician services, but also to physicians' "fear of personal violence, the difficulties of dealing with the complex social and emotional problems of families living in poverty, and the gross inadequacies of the needed support by municipal hospitals and other social services."

[23]Although the differentials were smaller for acute care, this was not because the disadvantaged waited less in acute situations but rather because the white and affluent waited more. The affluent were probably more likely to use emergency rooms in acute care situations, thus experiencing longer waits than at their regular providers. Studies have shown that affluent patients using emergency rooms tend to have more urgent needs than those of poorer patients (*130*).

Waiting times also vary substantially among different medical settings. Average waiting times ranged from over an hour in hospital outpatient clinics and emergency rooms to 41 minutes in doctors' offices and private clinics to 32 minutes in company or school clinics (table 29, right-hand column). Similar differences in waiting times among settings have been reported in local studies as well (*52, 129*).

The length of waiting times depends in large part on the use of scheduled appointments. As table 29 shows, the proportion of patients seen by appointment varies considerably among settings, and waiting times are generally longer in settings that have fewer scheduled appointments. In addition, waiting times within most settings were much shorter for visits by appointment than for walk-in visits. Yet, even though a number of studies have shown that appointment systems can cut patient waiting time substantially (*131, 132*), many hospital clinics still use "block" appointments rather than individually scheduled visits.[24]

Waiting and travel time can be viewed as a kind of nonmonetary "price" that, like actual price, may be a barrier to access (*108, 135–137*).[25] Some research indicates that distance plays a primary role in choice of provider but has less influence on volume of care (*34, 110, 139, 140*). Other evidence suggests that, particularly for nonurgent services, distance

TABLE 29. Use of Appointments and Average Office Waiting Time by Appointment Status at Different Sources of Care: U.S., 1976.

Medical Setting	Percent with Appointments[1]	Office Waiting Times[1] for (minutes): Appointments	Walk-in	Total
All settings	65	39	61	43
Doctor's office or private clinic	69	37	58	41
Company or school clinic	23	33	32	32
Other publicly supported clinic		45	70	53
Hospital outpatient clinic or emergency room	41	65	83	72

[1]Adapted from Aday, *et al.*, 1980, p. 65, based on the CHAS national sample; office waiting times were reported about the individual's *regular source of care*.
[2]Estimates based on the number of people who said they sometimes set up appointments in advance at their regular source of care (see Aday, *et al.*, 1980, p. 277).

[24]One rationale sometimes given for not having scheduled appointments in health care settings with predominantly poor or ethnic patients is their alleged inability or unwillingness to keep appointments. A variety of experiments designed to improve appointment-keeping behavior have challenged this notion, suggesting that institutional efforts can be key in lowering broken appointment rates to acceptable levels (*131, 133, 134*).

[25]In addition to being a deterrent to patients, long office waiting times may also give physicians an incentive to schedule fewer followup visits, if patient loads are heavy and doctors feel overburdened (*138*).

does inhibit utilization (*107, 141, 142*). Both Simon and Smith (*143*) and Acton (*135*) found that distance was a stronger deterrent to *short* physician visits than to longer visits, perhaps because the short visits were less urgent (*101*).

Much of the economic research on the role of time factors assumes that time is less valuable to the poor because the "opportunity costs" (the value of opportunities foregone during that time, usually measured by the individual's wage rate) are lower than those of the well-to-do. This assumption implies that the major constraints on behavior are economic, and ignores nonfinancial constraints such as the difficulty of getting a babysitter, taking time off from work, or arranging transportation. Such nonfinancial constraints may impinge more sharply on the poor, increasing the (noneconomic) opportunity costs of their time. (Even in economic terms, the poor may be more dependent on wages lost in taking time off work.) Several studies suggest, as do the findings presented in section VI, that in contrast to the "opportunity cost" theory, travel times have a *greater* deterrent effect on the poor than on the affluent (*144, 145*).

Another flaw in the economic analysis of time costs is its implication that the poor "voluntarily" choose to pay time costs rather than financial costs. In reality, they may have little choice about either. As noted previously, health care options are severely limited in many poor communities, and the real choice may be not between time and money but between care and no care. To assume that the poor rationally "choose" to travel farther and wait longer to get medical care ignores such constraints and verges on "victim-blaming."

Office Hours, Appointments, and Off-Hours Coverage

Various organizational policies regarding office hours, coverage arrangements, and appointments may significantly affect the accessibility of care. Individual appointments are relatively uncommon in hospital clinics compared with other settings, as has been discussed. Lead times for appointments (whether individual or block appointments) also tend to be longer in hospital clinics than in other settings—in 1976, they averaged 13 days, compared with 5 days in doctors' offices, and 2 days in other settings (unpublished data from the 1976 CHAS survey).

Not being able to get an appointment "as soon as needed" was the most commonly named problem in getting medical care in a 1974 national survey (*91*). On the average, the affluent schedule appointments farther in advance than the poor, but these appointments are also more likely to be for preventive or elective care, which may require less immediate attention. In fact, problems making an appointment were reported less often by the affluent than by the poor. Among people who made appointments, 10 percent of those with incomes below $5,000 reported having problems compared with 7 percent of those with incomes above $15,000 (*3*). There were comparable differentials by race.

The convenience of office hours is another important determinant of accessibility. For example, it may be difficult for some working adults and for mothers with small children to see providers who hold office hours only between 9 a.m. and 5 p.m. weekdays. In addition, coverage during

nonoffice hours and house calls for emergency needs indicate the availability of care under unusual circumstances. Again, we find the usual pattern of disparities by race and income (table 30). The poor and minorities are less likely than those who are affluent or white to use providers who hold office hours on week nights or Saturdays or who make house calls. House calls are *twice* as common among whites as nonwhites. These disparities are due in part to the more frequent use of hospital-based clinics by the poor and minorities; as table 30 shows, Saturday office hours and especially house calls were much less common in such clinics than in doctors' offices. (There are also income-related disparities *within* settings, as discussed below.)

The lack of office hours on week nights or weekends appears to be more than just an inconvenience for the poor. For both poor and nonpoor, use rates were generally higher among people using providers who offered weeknight office hours. However, the *differentials* were greater among the poor, suggesting that their utilization was more dependent than that of the affluent on the availability of weeknight hours.

Adequate coverage during nonoffice hours is an important element of the *quality* of health care, allowing access for emergency needs (*146*). Office hours and arrangements for off-hours coverage vary markedly among different health care settings. Table 31 compares six different ambulatory care settings in Washington, D.C. and reveals patterns of care that are probably fairly typical. Off-hours access was poorest in the public clinics, which were open mostly during working hours yet had no special arrangements for off-hours coverage (38 percent had no provisions at all).

TABLE 30. Availability of Providers by Patients' Family Income, Race, and Medical Setting: CHAS National Sample, 1976

Family Income, Race and Medical Setting	Percent Using Providers Who Offer:		
	Office Hours Week Nights	Office Hours on Saturdays	House Calls
All persons	30	65	26
Income			
Under $8000	22	69	21
$8000–$14,999	32	78	25
$15,000 or more	34	79	31
Race			
White	30	66	28
Nonwhite	29	63	14
Medical Setting			
Doctor's office	30	67	28
Hospital outpatient or emergency room	31	53	2
Other clinic	34	36	10

SOURCE: Unpublished data from the CHAS 1976 national survey.

TABLE 31. Average Hours Open and Types of Arrangements for Off-Hours Coverage in Different Ambulatory Care Settings: Washington, D.C., 1971

	Usual Source of Care					
	Fee-for-Service					
	Solo Practice	Group Practice	Prepaid Group Practice	Public Clinic	Hospital Outpatient Department	Hospital Emergency Room
Total number of hours open per week (average)	38	43	63	41	34	168
Distribution of off-hours coverage arrangements:						
None	21	6	0	38	0	0
Answering service	8	0	0	0	0	0
Refer to hospital emergency room	26	0	0	62	100	100
Coverage by doctors in same or other practice	45	94	100	0	0	0
Number of organizations sampled	70	15	3	16	4	1

SOURCE: Dutton, unpublished data.

Many solo doctors also had limited hours and poor coverage arrangements. The hospital emergency room offered maximum access, with 24-hour coverage. The prepaid group practice was also quite accessible, with some evening and weekend hours and regular coverage during off-hours by doctors in the practice.[26]

Beyond Two-Class Care: Unequal Barriers Within Settings

Because the poor are much more likely than the nonpoor to rely on hospital clinics and other public settings for primary care, they must cope with the sometimes considerable financial and organizational barriers of such settings. The problems do not end there, however. Within each setting, too, the poor often face greater obstacles than the nonpoor.

[26]It was interesting to note in these data that the frequency of medical "needs" reported during nonoffice hours (from 6 p.m. to 8 a.m.) was more strongly related to patients' economic status than to providers' hours. About 20 percent of the predominantly low-income patients using the public and hospital clinics reported medical needs during these hours compared with about 33 percent of the generally more affluent patients using the three private systems. The more affluent were apparently less willing to wait until regular office hours when symptoms appeared; the poor, regardless of which setting they used, were more likely to say they had no off-hours "needs."

Whether this is because the poor use different providers or because they are treated differently by the same providers is difficult to say; most likely, both are true. The inequities are real, and in some cases substantial.

Data from the CHAS 1976 national survey reveal unequal barriers within three major types of ambulatory settings (doctors' offices, hospital clinics, and public, company and school clinics). In all three settings, low-income patients were most likely to have no insurance, to wait longest in the provider's office, and to have the longest trip to the provider. Generally, in fact, the higher the income, the lower the barrier. For example, waiting times in doctors' offices declined steadily with patient income—from 51 minutes for low-income patients to 41 minutes for those with middle incomes to 36 minutes for those with high incomes. The proportion of patients with no insurance coverage varied even more sharply by income in all three settings. Insurance coverage is especially important in hospital clinics given their high charges, yet more than a quarter of low-income patients using these clinics had no protection at all.

Similar income-related differences are also evident in data from Washington, D.C. (table 32). Poor patients waited longer in the provider's office than nonpoor patients in every setting—almost twice as long in the fee-for-service group practices. The poor generally had to travel farther to get to their regular providers, and it took them longer to reach all settings except public clinics.

On the other hand, delays in getting an appointment were generally shorter for the poor in most settings. The one exception was hospital emergency rooms, but as mentioned before, this was probably because the affluent are more likely than the poor to use emergency rooms for truly urgent problems that require immediate attention. The poor also tended to use providers who charged lower fees, although again there was one exception: poor families used *higher cost* hospital outpatient departments than those used by the more affluent. In fact, the average charges in the hospital clinics used by the poor were second only to charges in the fee-for-service group practices used by the affluent. Because many hospital clinic patients have inadequate insurance coverage, such charges may have presented a significant financial barrier to access.

Convenience factors also favor the affluent within most settings. The CHAS 1976 survey compared the availability of week night and Saturday office hours and house calls to patients of different income levels within different ambulatory settings. Again, although the settings themselves vary with respect to such factors, there are also some notable disparities *within* settings. Even in doctors' offices, where one might expect traditional patterns of practice to be more uniform, the convenience of services varies according to patients' economic status: providers used by low-income patients were least likely to have office hours week nights or Saturdays or to make house calls. This pattern is unfortunate given the apparently greater dependence of the poor on the availability of office hours at times other than during the work week.

Discriminatory patterns of care also persist within some settings. For example, a study by Perkoff and Anderson (*130*) suggests that nonmedical factors, such as the patient's race, influenced the decisions of emergency room physicians concerning hospital admission. Another study of surgical

TABLE 32. Differences in Financial, Organizational and Structural Barriers Faced by Poor and Nonpoor Patients in Different Ambulatory Settings: Washington, D.C., Sample, 1971

Average for Poor and Nonpoor Patients in Each Setting	Usual Source of Care					
	Fee-for-Service		Prepaid Group Practice	Public Clinic	Hospital Outpatient Department	Hospital Emergency Room
	Solo Practice	Group Practice				
Provider charge index[1](dollars)						
Poor	6.18	6.09	prepaid	free	8.58	8.00
Nonpoor	6.46	9.97	prepaid	free	6.84	8.00
Average distance to provider (miles)						
Poor	3.1	4.2	5.0	1.6	3.5	1.0
Nonpoor	3.3	3.5	4.2	1.9	2.7	0.7
Average travel time to provider (minutes)						
Poor	20	26	33	17	27	12
Nonpoor	18	20	24	18	20	9
Average time waited in office to see provider (minutes)						
Poor	27	46	24	51	49	34
Nonpoor	25	26	20	43	42	29
Average days waited for appointment						
Poor	3	1	7	17	5	5
Nonpoor	4	7	13	18	6	3
Total number of patients representing each setting	842	311	359	768	615	166
Poor	153	16	21	276	286	56
Nonpoor	689	295	338	491	328	115

[1]Index is based on average of charges for pediatric exam, treatment of ear infection, urinalysis, hemoglobin, and throat culture.

SOURCE: Dutton, unpublished data.

care in a large teaching hospital found that race and economic status were important determinants of the type of care received: blacks and patients on Medicaid were from two to four times as likely as whites to be under the care of surgical residents still in training rather than staff surgeons (*147*). Moreover, this racial pattern has remained unchanged over the past two decades. Various studies have also documented the fact that the poor and minorities, often those on public assistance, are more likely than other patients to see foreign medical graduates (*148–150*).

Summary

Obtaining health care involves both financial and nonfinancial costs—money, time, inconvenience, and various kinds of emotional stress. All of these are potential barriers to access, and some—provider fees, office hours, the distance patients must travel—have a disproportionate impact on the poor. Moreover, the poor and minorities also face *more* of these barriers than other groups. They spend a considerably larger fraction of their incomes on health care, travel farther to get to their usual providers, wait longer in providers' offices, have more trouble making appointments, and have less access to week night office hours and house calls. These barriers reflect the inadequacies of public and private health insurance coverage as well as the greater reliance of the poor on hospital-based clinics. Yet even within the same settings, there are disparities between the barriers faced by poor and nonpoor patients and some evidence of different standards of care.

THE IMPACT OF BARRIERS AND OTHER SYSTEM FEATURES ON PATIENTS' ACCESS: NEW FINDINGS FROM A STUDY IN WASHINGTON, D.C.

Patterns of use reflect the impact of barriers to access along with a host of other factors—patients' demographic and socioeconomic characteristics, the underlying distribution of illness, organizational aspects of the medical setting, and physician features such as background, training and current medical attitudes. Many studies indicate that one or more of these factors may affect patterns of patient utilization, but few investigations encompass all of them. As a result, it is often difficult to assess the impact of specific barriers apart from other provider and system features and patient attributes that also influence utilization. Further, a number of studies have dealt only with one or two different ambulatory care settings, and it is not clear how applicable the findings are to other settings. Although there is now widespread recognition that the organization and financing of health care have a major impact on patterns of utilization, many uncertainties remain concerning the role of particular factors.

This section presents new findings from a study of ambulatory care in Washington, D.C. that seeks to clarify the impact of various kinds of access barriers on patient utilization. This study extends the findings of earlier research that demonstrated significant differences in the net impact of different ambulatory care settings on patterns of use (reported in table 19). It identifies the specific barriers and other system features that comprise this net impact and provides estimates of their relative importance. Although the study is based on a single city with an atypical racial composition, and on calculations that are in part exploratory, the findings nevertheless help to identify a number of important issues that deserve investigation in other settings.

The results address four major questions: (1) How do different types of ambulatory care settings compare with respect to the patients served, financial and organizational barriers to access, and types of physicians employed? (2) What are the most important financial and organizational barriers to use? (3) Do such barriers affect children's and adults' use differentially? (4) What is the combined impact of the access barriers faced by the poor in hospital outpatient departments compared with those faced by the nonpoor in private settings?

Multiple measures of use are analyzed, including both children's and adults' use and distinguishing between patient-controlled measures such as preventive care and initial illness visits, and physician-controlled measures such as followup visits and medication. Although long recognized as important (*151*), the distinction between patient and physician control is often ignored in empirical research. It is essential in analyzing the factors that impinge on different measures of use because, as mentioned before, patient-controlled use is most vulnerable to financial and organizational barriers; physician-controlled measures are more closely related to the clinical severity of illness as well as the incentives and constraints that influence physicians' practice patterns. The findings are based on a multiple regression model of use that includes both patient characteristics and also provider and system features. The relatively large sample size and diverse group of providers and ambulatory care settings permit calculations of the independent effects of different access barriers while controlling statistically for the effects of both patient and provider characteristics.

Data and Methods

The data reported here are from a household interview survey and a survey of providers in Washington, D.C. in 1970–71, carried out under the auspices of the Institute of Medicine (*152*). The household survey was conducted in two geographic areas of Washington, D.C. to obtain a broad range of income levels and sources of health care. It included a random sample of households with children between the ages of 6 months and 11 years, stratified by type of usual source of care. The completion rate was 85–90 percent. The present study deals with a subset (roughly half[27]) of the original sample, consisting of all persons who had a regular source of health care and whose data were complete from both the household interview and their regular provider. It included 681 families, containing 1,623 adults (12 years old or more) and 1,435 children, and closely resembled the original sample on key characteristics.

[27]This reduction was due primarily to missing data from regular providers who had not been included in the provider survey. Fewer than 10 percent of persons in the original sample were eliminated because they did not name a regular source of care.

The provider survey included all regular sources of children's medical care mentioned in the household interviews.[28] The providers identified were medical institutions,[29] particular professionals within institutions, and solo practitioners. The survey obtained information on the organization of the practice as a whole and also on individual physicians in the practice. The response rate was 80–85 percent. The subsample of providers analyzed in the present study included 70 solo practitioners, 16 fee-for-service groups, three prepaid group clinics (all belonging to a single prepaid plan), four hospital pediatric outpatient departments (OPD's), one emergency room (ER), and 16 public clinics (city and volunteer well-child and family clinics).

Because the study was conducted in Washington, D.C., about 90 percent of the study families were black. Although the regression analyses distinguished the effects of race from other factors that might affect patterns of use, the results may still reflect some patterns that are more characteristic of black than of white populations. With respect to income distribution and use rates, the sample was quite similar to national urban averages (*2, 95*). The sample of providers representing the six health care settings also appeared to be quite similar to national averages for many characteristics, such as number of years of practice and specialty status (*153*), although it contained a much higher proportion of black physicians than the national average of 2 percent (*154*).

Measures of use are based on information reported in the household survey. Two types of patient-controlled use are analyzed: *preventive care*, indicated by health checkups for respondents and children; and *initiation of care*, indicated by one or more visits to the usual provider in the last 6 months for children and for all family members, (nonschool) vision and hearing tests for children,[30] and consulting a doctor for children's ear problems. Measures of physician-controlled use include the number of *followup visits* for all persons with one or more visits in the last 6 months, and prescribed medication. Followup visits are based on the "episode of medical care" concept (*155*). Appendix A lists the coding and mean values of these measures, and also shows the proportion of total variation explained by each estimation equation.[31]

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[28] A single usual provider was identified for each family member, based on information concerning regular sources of care and utilization reported in the household interview. When more than one regular source was listed, the provider seen most often during the last 6 months was defined as the usual provider. Although people may have seen other providers as well, use of the identified usual providers generally constituted a large proportion of total use. For example, among persons with visits during the 6 months prior to the survey, more than 95 percent had seen their usual provider at least once and 80 percent has seen *only* their usual provider.

[29] When an institution was identified as the regular source rather than a particular physician, only the physicians in the institution who regularly cared for children were included in the sample, and their responses were averaged.

[30] The correlation of vision and hearing tests with eye and ear problems, respectively, was positive, suggesting that the purpose of these tests was primarily diagnostic or therapeutic rather than preventive.

[31] Although these R^2 levels are similar to or higher than those in most analyses based on individual observations, they indicate that, despite the wide range of variables included in the regression model, much of the variation in use rates remains unexplained. The credibility of the significant relationships estimated is not necessarily diminished by a low proportion of explained variation, however; valid estimates are most dependent on the inclusion of relevant (and potentially confounding) variables.

For each of the 10 use measures, a multiple regression equation was estimated which contained both patient characteristics as well as provider and system features.[32] Considerable previous research suggests that patient characteristics affect patterns of use (*157, 158*). Appendix B lists the patient factors included in the present study.

Provider and system features included various access barriers and also measures of physicians' characteristics.[33] Among the access barriers were: (1) *financial barriers*, represented by fees charged for selected services; (2) *time barriers*, represented by the distance patients traveled to their regular provider, and the time patients spent waiting in the provider's office; (3) *organizational barriers*, reflecting various organizational policies which affect the convenience of care—the use of prescheduled appointments, the lead time required to get an appointment, office hours, the adequacy of off-hours coverage, and physicians' arrangements for sharing patient care; and (4) *practice patterns*, represented by the proportion of patients who were "regular" users of that source and the general economic level of patients. The effects of both charges and distance were estimated separately for the poor and non-poor to test for their possible differential impact on the poor. The physician characteristics included demographic factors, training and experience, and current medical attitudes (preventive orientation and general satisfaction with practice). Appendix C lists the coding and mean values of all of these measures.

The regression results indicate the "direct" links between access barriers and utilization—relationships that are statistically independent of one another and also of provider and patient characteristics.[34] These results are also used to illustrate the impact of access barriers typically faced by the poor and the nonpoor in hospital outpatient departments and solo practice, respectively. To provide a basis for comparing the effects of barriers in the two settings, a partial estimate of the probability of visits for a hypothetical 6 year old female child was first calculated, using average values for all patient and physician characteristics (but not including the barriers).[35] Estimates of the incremental effects of each

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[32]Each equation contained the variables listed in appendices B and C. The parameter estimates obtained for both patients' and physicians' characteristics are reported elsewhere (*156*); for present purposes, these measures serve as "control" variables which account for additional sources of variation in use and thus help to isolate the variables—e.g., the quadratic and interacting effects of age and sex, and the differential effects of charges and distance on the poor. Ordinary Least Squares was used as the estimation method. The results of the regression analysis are reported here in standardized form (beta coefficients) to facilitate comparison of dependent and independent variables measured in different units.

[33]Given the fragmentary nature of findings from previous research on these features, the selection of variables was necessarily exploratory, and the findings require additional theoretical or empirical validation. See Dutton (*156*) for further detail on procedures for developing the model.

[34]Indirect effects, mediated through other variables, may also exist that are quite different from the direct relationships reported. Although a more complete causal analysis of the entire system of relationships would include both direct and indirect effects, estimates of the direct effects of system features provide a useful starting point for a more comprehensive analysis.

[35]This estimate was obtained by multiplying the (nonstandardized) regression coefficients of all patient characteristics listed in appendix B and the physician characteristics listed in appendix C times the average or modal sample value for each of these variables. Physician characteristics were included in calculating the original partial estimate because they seemed less likely to affect patients' access than the various structural barriers.

barrier were then calculated by multiplying the average values for the barriers in each setting times their respective regression coefficients.[36] Final probability estimates for each setting were obtained by adding the initial partial estimates and all of the incremental effects of the barriers. These two estimates compare a given typical child's likelihood of visits to two different regular sources of care—settings that were identical in all respects except that one had the financial, time and organizational barriers typical of a hospital outpatient department and the other had the corresponding barriers typical of solo practice.

Findings

(1) How Do the Six Different Ambulatory Care Settings Compare?

Patient Groups

The patient groups using different regular sources of care for their children differed considerably, especially along economic lines (see table 33). The average income of families using the three "private" settings (fee-for-service solo practice, group practice, and the prepaid group) was almost twice as high as that of families using public clinics and hospital outpatient departments (OPD's), with incomes of families using emergency rooms (ER's) falling between these. More than half of the OPD families reported public assistance coverage compared with only a quarter of the ER families, and even fewer of the families using the three "private" systems. Reported illness was quite comparable: adults in the fee-for-service groups and children in the prepaid group had the highest reported illness levels, but none of the differences among settings was statistically significant ($p<0.05$). There was also little variation across settings in respondents' attitudes toward health care, average family size, or length of residence in the District of Columbia.

Patterns of use varied markedly among settings, with the highest rates occurring in the three "private" settings. The differences were greatest for preventive care: 88 percent of the prepaid group children had regular health checkups compared to only 16 percent of the children using an ER as a regular source.

Physician Characteristics

The characteristics of physicians in the six settings also differed (table 34). Women physicians were most common by far in the public clinics—a national pattern (*159*)—and also in the fee-for-service and prepaid group practices where they were more likely to have salaried positions. The proportion of black physicians was fairly high in all settings compared to

[36]The average values of barriers in these two settings, respectively, were: provider charge index = $8.58, $6.46; distance = 3.5, 3.3 miles; office waiting time = 49, 25 minutes; percent of patients seen by appointment = 34, 54 percent; days waited for appointment = 5, 4; total hours per week = 34, 38; adequacy of off-hours coverage = 2.0, 2.2; coordination of physicians' practices = 2.2, 1.2; proportion of regular source patients = 100, 75 percent; low-income clientele only = 100, 0 percent.

TABLE 33. Selected Characteristics of Patients with Different Usual Sources of Health Care: Washington, D.C., 1971

Individual and Family Characteristics	Usual Source of Care					
	Fee-for-Service		Prepaid Group Practice	Public Clinic	Hospital Outpatient Department	Hospital Emergency Room
	Solo Practice	Group Practice				
Socioeconomic Status and Race						
Average family income (dollars)	11,000	11,460	12,170	6,560	6,288	8,416
Percent below poverty	14	6	4	32	47	31
Percent respondents with education beyond high school	46	46	37	13	15	7
Percent Black	90	81	93	99	100	98
Insurance Coverage						
Percent with private health insurance	80	91	100	57	49	76
Percent with public assistance	13	10	4	38	53	26
Illness						
Average *child's* chronic illness index	0.12	0.10	0.13	0.10	0.11	0.13
Percent of *adults* with a medical problem	10	17	13	11	13	13
Health Care Use						
Percent of *children* "regularly" taken for health check-ups	56	69	88	50	30	16
Percent of *children* with visits to usual source in 6 months	60	61	75	55	41	49
Percent of *adults* with visits to usual source in 6 months	34	38	49	17	23	24
Number of families representing each setting	187	68	81	183	128	35
Number of adults	444	176	202	382	296	103
Number of children	398	135	147	386	309	60

TABLE 34. Physician Characteristics in the Six Different Ambulatory Care Settings

Physician Characteristics	Usual Source of Care					
	Fee-for-Service		Prepaid Group Practice	Public Clinic	Hospital Outpatient Department	Hospital Emergency Room
	Solo Practice	Group Practice				
Demographic						
Percent female	2	29	18	58	17	6
Percent black	71	40	8	21	6	13
Training and Experience						
Average no. of years of practice	26	21	26	18	13	24
Percent still in training	1	0	0	0	54	0
Average no. of years of residency	2.7	2.4	3.3	2.6	1.9	1.2
Attitudes						
Preventive medical orientation[1]	28	46	67	31	45	50
Satisfaction with practice[2]	2.21	2.46	2.80	2.03	2.00	2.99

[1]Based on the average percent of physicians reporting routine screening for vision, hearing and blood disorders during pediatric exams.
[2]Coded: 1 = not satisfied, to 3 = very satisfied.

the national average, ranging from 6 percent in the OPD's to 71 percent of the physicians in solo practice. The average number of years of practice ranged from 13 years for physicians in the OPD's, where almost all of the physicians in training were located, to 26 years for solo practitioners. Of the six settings, the prepaid group had the most highly specialized physicians, as indicated by years of residency, number of specialists, and physicians' preventive medical orientation. OPD and ER physicians had the shortest average residencies, although many of the OPD physicians had not yet completed training. Physicians' general satisfaction was highest in the ER and the prepaid group, and lowest in the hospital OPD and public clinics.

Potential Access Barriers

Various potential barriers to access are shown in table 35. Financial barriers, represented by the average fees charged for selected services, were highest in the fee-for-service group practices, followed by the

TABLE 35. Various Potential Access Barriers in the Six Different Ambulatory Care Settings

Financial Barriers	Usual Source of Care					
	Fee-for-Service		Prepaid Group Practice	Public Clinic	Hospital Outpatient Department	Hospital Emergency Room
	Solo Practice	Group Practice				
Provider charge index[1](dollars)	6.22	9.46	prepaid	free	8.02	8.00
Time Barriers						
Average distance to provider (miles)	3.2	3.8	4.4	1.8	3.5	0.9
Average waiting time in provider's office (minutes)	24	28	20	49	47	33
Organizational Barriers						
Percent of physicians that see majority of patients by appointment	54	75	100	26	34	0
Average number of days waited for appointment or to be seen	4	6	12	18	5	3
Practice Patterns						
Average degree of coordination with other physicians' practices[2]	1.2	2.1	2.0	2.4	2.2	2.0
Percent with most or all regular source patients	75	78	100	60	100	100
Percent with exclusively low-income patients	39	20	0	71	71	100
Number of organizations represented	75	16	3	16	4	1
Number of physicians represented	75	25	14	25	31	3

[1]Index is based on average of charges for pediatric exam, treatment of ear infection, urinalysis, hemoglobin, and throat culture.
[2]Coordination was coded: 1 = low (solo practice); 2 = medium (share personnel and/or facilities); 3 = high (share patients with other MDs).

hospital OPD's and ER's.[37] For the predominantly poor patients using these two hospital-based settings, high charges may have been a problem. As noted previously, between half and three-quarters of these patients were not covered by Medicaid; 16 percent of the ER families had no insurance coverage at all. At the other extreme in terms of financial access were settings where services were available free of charge, as in the public clinics and (after enrollment) in the prepaid group.

There was considerable variation both within and across settings with regard to time and organizational barriers. Hospital emergency rooms and public clinics were the most accessible in terms of distance, for example, but, along with the hospital OPD's, had much longer office waiting times than the three private settings. Conversely, the prepaid group practice had the shortest office waiting time (20 minutes) and the longest average distance traveled (4.4 miles). Delays in getting an appointment ranged from a low of 3 days in the ER (for those patients who made appointments) to 18 days in the public clinics, probably reflecting the urgency of conditions seen as well as the availability of appointments. Office waiting times appear to vary directly with the extent of scheduled appointments; patients waited substantially longer in hospital ER's, OPD's, and public clinics where appointments were least common. The advantages of access on short notice in these settings is thus balanced against the disadvantages of longer office waiting times.

Organizational accessibility also depends on the convenience of office hours for patients, the adequacy of coverage arrangements during non-office hours, and perhaps also the general atmosphere. As discussed previously, the public clinics and some of the solo doctors had limited hours and inadequate arrangements for off-hours coverage. The OPD's as well had relatively short hours and poor off-hours coverage, despite a high degree of coordination with other physicians' practices. The general atmosphere in many of the hospital clinics, which are typically busy and impersonal, may also have been a psychological barrier to access for some patients.

Summary: Comparisons of the Six Settings

There were sharp divisions along economic lines among the patients using different ambulatory settings as a usual source of care: the majority of affluent families used one of the three "private" settings—fee-for-service solo or group practice, or the prepaid group; poor families were

[37] Financial access depends on both the relative price of services and the extent of patients' insurance coverage and other economic resources. However, only in the prepaid group is insurance coverage an aspect of the system structure itself; in the other settings, it is a matter of patient discretion and economic level. Because the intent here is to assess the impact of system features rather than patient decisions, the discussion focuses on physician fees. Such fees are likely to be a deterrent for people who do not have full coverage for ambulatory care, which probably includes the majority of patients with private health insurance (because most policies have a sizable deductible and also copayments). Further, any diluting effect that insurance coverage may have on the impact of prices is accounted for to some extent by including measures of private insurance and public assistance in the regression analyses.

more likely to use a public clinic, hospital outpatient department, or emergency room. The types of physicians also varied considerably among settings: more than half of the public clinic doctors and a third of the fee-for-service group doctors were female, and most of the solo practitioners were black. More than half of the OPD doctors were still residents in training. Physicians in the prepaid group were the most specialized and, along with the solo practitioners, had been in practice the longest.

The hospital OPD's and ER's generally had the greatest barriers to access, as many studies have found; most notable were costs, office waiting times and, in the OPD's, limited hours and poor off-hours coverage. The public clinics had no financial barriers, but did have a number of organizational barriers such as limited hours, long office waiting times, and fragmentation of care. Considering both financial and organizational barriers, the prepaid group was probably the most accessible setting, although the two fee-for-service settings were somewhat more accessible in organizational terms.

(2) What Are the Major Financial and Organizational Barriers to Use?

The regression results (tables 36–40) provide estimates of the relative impact of various barriers on patient utilization. Positive estimates indicate factors that are associated with increased utilization, and negative estimates indicate factors that may inhibit utilization. The statistical significance of the estimates is indicated in the tables.

Financial and Time Barriers

For both upper and lower income groups, higher charges were apparently a deterrent to all types of use (table 36). Although not all of the estimates are significant, they are uniformly negative—striking evidence of the effect of prices on ambulatory care utilization. The relative strength of this effect varies according to the type of use between the poor and the nonpoor: for preventive care and initiation of care the impact was generally greater among the poor (estimates for the poor were more strongly negative than for the nonpoor); for followup care and medication the impact was greater among upper income patients. This pattern suggests that the poor tended to respond to higher prices by cutting back on preventive services and on initiation of illness care; affluent patients were more likely to cut back on followup care or medication. Affluent patients may have had greater discretion over the amount of followup care than the poor due to less severe illnesses, or they may be less subject to control by providers than the poor as might be suggested by the high rates of "unnecessary" surgery reported in some Medicaid populations (*160*).

Table 37 shows the estimated effects of two barriers that involve time costs—distance to the provider and office waiting times. As expected, the effects of distance also vary by income. For the poor, distance appears to have been a significant deterrent to preventive care and a weak deterrent

TABLE 36. Estimated Direct Effects of Provider Charges on Measures of Ambulatory Use for Poor and Nonpoor

	Standardized Beta Coefficients	
	Provider Charge Index	
PATIENT-CONTROLLED USE	*Nonpoor*	*Poor*
Preventive Care		
Number of *respondent's* health examinations	–0.026	–0.014
Frequency of *children's* preventive health examinations	–0.035*	–0.080**
Initiation of Care		
Probability of any visits to usual provider during last 6 months by *person*	–0.010	–0.038*
Probability of any visits to usual provider during last 6 months by *child*	–0.005	–0.035
Probability that *child* ever had a (non-school) hearing or ear examination	–0.048*	–0.065**
Probability that *child* ever had a (non-school) vision or eye examination	–0.021	–0.109***
Probability that *child* saw a doctor for a past ear problem	–0.013	–0.049
PHYSICIAN-CONTROLLED USE		
Followup Care		
Number of followup visits per medical condition to usual provider by *person* in last 6 months	–0.061	–0.008
Number of followup visits per medical condition to usual provider by *child* in last 6 months	–0.043	–0.017
Medication		
Probability that medication was prescribed for anyone in *family* during last 6 months	–0.063*	–0.007

*** $p<0.01$ ** $p<0.05$ * $p<0.20$

NOTE: Significance statistics pertain to the *difference* between the estimated effect of distance on the poor compared with the nonpoor; however, the beta coefficients indicate the net estimated effects of distance on the poor and the nonpoor. (The estimate for the poor was obtained by adding the *differential* effects estimated for the poor to the actual effect estimated for the nonpoor.)

to initiation of illness care. For the nonpoor, on the other hand, distance had no significant relation to any type of use. Indeed, for all measures but one (ear examinations), the estimates for the poor are more negative (or less positive) than those for the nonpoor, and five of these differences are at least weakly significant.

Office waiting times also appear to have had a generally inhibiting impact on patient use: 7 of the 10 estimates are negative. As with distance, the strongest impact was on preventive care, the most discretionary type of use. Findings are mixed for initiation of care and followup, perhaps because patients had less discretion in avoiding long waits when symptoms were urgent or when followup visits were recommended by their physicians.

TABLE 37. Estimated Direct Effects of Distance and Office Waiting Time on Patients' Ambulatory Use

	Standardized Beta Coefficients		
	Distance to Provider		Waiting Time in Office
	Nonpoor	Poor	
PATIENT-CONTROLLED USE			
Preventive Care			
Number of *respondent's* health examinations	0.047	–0.024*	–0.125***
Frequency of *children's* preventive health examinations	–0.009	–0.077**	–0.036
Initiation of Care			
Probability of an visits to usual provider during last 6 months by *person*	–0.003	–0.039*	–0.038**
Probability of any visits to usual provider during last 6 months by *child*	–0.035	–0.098*	–0.004
Probability that *child* ever had a (non-school) hearing or ear examination	0.029	0.048	0.087***
Probability that *child* ever had a (non-school) vision or eye examination	0.029	0.028	–0.011
Probability that *child* saw a doctor for a past ear problem	–0.055	–0.060	0.089*
PHYSICIAN-CONTROLLED USE			
Followup Care			
Number of followup visits per medical condition to usual provider by *person* in last 6 months	0.027	0.013	–0.003
Number of followup visits per medical condition to usual provider by *child* in last 6 months	0.068	0.062	–0.009
Medication			
Probability that medication was prescribed for anyone in *family* during last 6 months	0.078*	–0.028*	0.018

*** $p < 0.01$ ** $p < 0.05$ * $p < 0.20$

NOTE: Significance statistics pertain to the *difference* between the estimated effect of distance on the poor compared with the nonpoor; however, the beta coefficients indicate the net estimated effects of distance on the poor and the nonpoor. (The estimate for the poor was obtained by adding the *differential* effects estimated for the poor to the actual effect estimated for the nonpoor.)

Organizational Barriers and Practice Patterns

The use of scheduled appointments, potentially an access barrier, appears in fact to have been associated with *greater* utilization: 8 of the 10 estimates are positive (see table 38). (Note that these findings are independent of the shorter office waiting times that are likely to result

TABLE 38. Estimated Direct Effects of Appointment System and Appointment Delay on Patients' Ambulatory Use

Patient-Controlled Use	Standardized Beta Coefficients: Percent of Patients Seen by Appointment	Standardized Beta Coefficients: Days Waited to Get Appointment
Preventive Care		
Number of *respondent's* health examinations	–0.008	–0.020
Frequency of *children's* preventive health examinations	–0.076*	0.069**
Initiation of Care		
Probability of any visits to usual provider during last 6 months by *person*	0.036*	0.014
Probability of any visits to usual provider during last 6 months by *child*	0.094**	0.054*
Probability that *child* ever had a (non-school) hearing or ear examination	0.132***	0.018
Probability that *child* ever had a (non-school) vision or eye examination	–0.026	–0.004
Probability that *child* saw a doctor for a past ear problem	0.071	–0.104*
Followup Care		
Number of followup visits per medical condition to usual provider by *person* in last 6 months	0.022	–0.022
Number of followup visits per medical condition to usual provider by *child* in last 6 months	0.012	0.003
Medication		
Probability that medication was prescribed for anyone in *family* during last 6 months	0.048	–0.091*

***$p<0.01$ **$p<0.05$ *$p<0.20$

from scheduled appointments.) Another potential barrier—long lead times to get an appointment—had no consistent relation to use that was evident.[38]

Table 39 shows the estimated effects of office hours and off-hours coverage. Longer hours and better off-hours coverage apparently facilitat

[38]There are several possible explanations for this lack of relation. Long lead times may pose little inconvenience for many preventive and elective services. Patients may also take long lead times as an indication of the provider's popularity—and perhaps, therefore, quality—counteracting any deterrent effect. Further, lead times were longest in the public clinics and prepaid groups, and the positive effects of greater financial accessibility in these settings probably also served to counteract any negative effects of longer lead times.

TABLE 39. Estimated Direct Effects of Hours and Coverage Arrangements on Patients' Ambulatory Use

Patient-Controlled Use	Standardized Beta Coefficients	
	Total Hours Open/Week	Adequacy of Off-hours Coverage
Preventive Care		
Number of *respondent's* health examinations	–0.061*	0.058
Frequency of *children's* preventive health examinations	–0.036	0.054*
Initiation of Care		
Probability of any visits to usual provider during last 6 months by *person*	0.017	0.017
Probability of any visits to usual provider during last 6 months by *child*	0.096***	0.005
Probability that *child* ever had a (non-school) hearing or ear examination	0.091***	–0.020
Probability that *child* ever had a (non-school) vision or eye examination	–0.026	0.089**
Probability that *child* saw a doctor for a past ear problem	0.177***	0.082
Followup Care		
Number of followup visits per medical condition to usual provider by *person* in last 6 months	–0.060	0.073
Number of followup visits per medical condition to usual provider by *child* in last 6 months	–0.054	0.095
Medication		
Probability that medication was prescribed for anyone in *family* during last 6 months	0.042	–0.025

*** $p<0.01$ ** $p<0.05$ * $p<0.20$

ed patient access; the most significant estimates for both variables are positive, as are 8 of the 10 estimates for coverage.

Certain practice patterns may also affect accessibility. The degree of coordination among physicians' practice arrangements, the proportion of "regular" patients, and the general economic level of patients all influence patterns of patient care. The estimated effects of these factors on measures of use are shown in table 40. Coordination of physicians' practices appears generally to have been associated with lower use rates, especially for initiation of care. Maximum coordination (defined as sharing patients among physicians) may prevent patients from forming a stable relationship with a regular "personal" physician, thereby discouraging utilization. The proportion of regular patients in the practice had no consistent

TABLE 40. Estimated Direct Effects of Various Practice Patterns on Patients' Ambulatory Use

	Standard Beta Coefficients		
	Coordination of Physicians' Practices	Percent "Regular Source" Patients	Low Income Patients Only
PATIENT-CONTROLLED USE			
Preventive Care			
Number of *respondent's* health examinations	–0.008	–0.016	–0.070*
Frequency of *children's* preventive health examinations	0.074*	0.071*	–0.106***
Initiation of Care			
Probability of any visits to usual provider during last 6 months by *person*	–0.029	0.017	–0.060**
Probability of any visits to usual provider during last 6 months by *child*	–0.035	0.015	–0.101***
Probability that *child* ever had a (non-school) hearing or ear examination	–0.068*	0.081**	–0.080**
Probability that *child* ever had a (non-school) vision or eye examination	–0.071*	–0.064*	–0.033
Probability that *child* saw a doctor for a past ear problem	–0.150**	–0.079	–0.088
PHYSICIAN-CONTROLLED USE			
Followup Care			
Number of followup visits per medical condition to usual provider by *person* in last 6 months	–0.032	–0.004	–0.065
Number of followup visits per medical condition to usual provider by *child* in last 6 months	–0.008	–0.046	–0.069
Medication			
Probability that medication was prescribed for anyone in *family* during last 6 months	0.000	0.012	114*

***p<0.01 **p<0.05 *p<0.20

relation to individual patients' patterns of utilization. The general economic status of patients, however, had a very important effect: people seeing physicians with exclusively low-income patient clienteles had lower rates of use (often significantly lower) on every use measure but one (medication). Because the patients' own income levels were taken into account in these estimates, along with many other patient and system factors, the differentials presumably reflect the effects of being in a "poor people's" practice. Possible causes include poor communication with low-income patients (*161*), different "clinical policies" that evolve in low-

income practices, negative attitudes on the part of professionals (*66, 162–164*), or additional structural barriers to access.

Summary: Major Barriers to Access

Among various financial, organizational, and time factors that affect access, the most important factor seems to be the economic composition of the patient clientele. Patients of physicians with "poor people's" practices had lower rates of almost all types of use, regardless of their individual economic status or other personal characteristics and independent of other system barriers and physician characteristics. These lower rates may result from different "clinical policies" that evolve in low-income practices or from the effects of other barriers in such practices not represented in the data.

In addition to practice patterns, financial and time factors such as charges, office waiting time, and distance traveled, also played a significant role in limiting access. Their impact was generally greater on patient-controlled use—preventive care and initiation of care—than on physician-controlled use. The role of organizational barriers was less clear. Appointment lead times had no consistent relation to patients' use, although longer hours and better off-hours coverage were generally positively related to most patient-controlled use measures. Scheduled appointments, instead of limiting access, may actually have made access easier (even controlling for the associated reductions in office waiting times). Coordination of physicians' practices—often involving sharing patients—appears to have had a strong negative effect, particularly on patients' initiation of care.

Certain barriers had a disproportionate impact on the poor. Both distance and provider fees had a greater deterrent effect on the poor than the nonpoor with respect to patient-controlled use. For physician-controlled use, in contrast, the impact of fees was greater among the *nonpoor*, suggesting that they were able to retain more control than the poor over amount of followup care. Such control may have been possible due to less severe illnesses among the nonpoor or to less domination by providers.

(3) Do Access Barriers Affect Children's and Adults' Use Differentially?

Comparing the results for children and adults shown in tables 36–40, it appears that children's access is somewhat more sensitive to a number of barriers. For example, both distance and a low-income patient clientele had a stronger deterrent effect on children's preventive care and initiation of illness care than on corresponding care for adults. High provider fees also reduced the frequency of children's preventive care more than that of adults'—although high charges discouraged adults' initiation of illness care more than children's (table 36). Similarly, a high proportion of "regular" patients in the practice seemed to promote preventive care for children but not adults. On the other hand, office waiting time apparently affected adults more strongly than children, significantly inhibiting both preventive and symptomatic care for adults but not children.

(4) What Is the Combined Impact of the Access Barriers Faced by the Poor in Hospital Outpatient Departments?

To give an idea of the combined impact of the multiple barriers in a typical hospital outpatient department, table 41 compares a given typical child's likelihood of visits to two different regular sources of care: one with the financial, time and organizational barriers typical of a hospital outpatient department (OPD) and the other with the corresponding barriers typical of solo practice. The final probability of visits to the setting with the barriers of an OPD was 0.37, compared with 0.62 to the setting with barriers characteristic of solo practitioners. (Differences were even greater comparing OPD's and prepaid group practice; the final estimated probability of visits was 0.67 assuming barriers typical of the prepaid group.) In other words, if all other factors were equal, the estimated probability of visits would be *40 percent lower* in the OPD's than in solo practice due simply to differences in access barriers between the two settings. There were comparable differences for children's preventive examinations.

Table 41 also shows how each barrier contributed to the final probability estimates in the two settings, indicating their relative impact on access. Of the OPD barriers, the two which reduced the probability of visits by the greatest amount were distance and the low economic status of the practice clientele (each reduced the initial partial estimate by 17 percent). Provider charges and coordination of physicians' practices (involving sharing patients) were also important deterrents, reducing the initial estimate by 7 percent and 10 percent, respectively. (Again, there were very similar results for children's preventive examinations.) Although various other aspects of OPD's are clearly less conducive to patients' access than those of solo practice, the above four barriers were apparently largely responsible for the lower likelihood of visits due to barriers in the OPD's.

Conclusions

Although this study is based on ambulatory care settings in a single city, the findings are consistent with a wide range of evidence discussed in earlier parts of the paper. They suggest the following tentative conclusions:

(1) The poor, relying predominantly on hospital outpatient departments, emergency rooms, and public clinics for primary care, bear the brunt of current deficiencies in medical care financing and organization. Study results suggest that the multiple access barriers typical of outpatient departments reduced the likelihood of visits by 40 percent compared with the barriers typical of solo practice (and by even more compared with prepaid group practice). Thus, ironically, it is those with the greatest medical need who are likely to face the greatest barriers to access.

(2) The present "two-class" medical care system in which some sources of care are used almost exclusively by low-income

TABLE 41. Estimated Incremental Effects of Access Barriers in Solo Practice and Hospital Outpatient Departments on a Typical Child's Likelihood of Seeking Care

Partial Estimate of Probability of Visits[1]	Solo Practice		Hospital Outpatient Departments	
	0.56		0.56	
	Estimated Incremental Effects[2] for Barriers in			
	Solo Practice		Hospital Outpatient Departments	
	Change in Probability	Percent Change[3]	Change in Probability	Percent Change[3]
Financial and Time Barriers				
Provider charges	–0.01	–1	–0.04	–7
Distance to provider	–0.03	–5	–0.10	–17
Office waiting time	–0.00	–0	–0.00	–1
Organizational Barriers				
Percent of patients seen by appointment	0.02	3	0.01	2
Days waited to get appointment	0.01	1	0.01	1
Total hours open/week	0.06	11	0.06	10
Adequacy of off-hours coverage	0.01	1	0.01	1
Coordination of physicians' practices	–0.03	–6	–0.06	–10
Practice Patterns				
Percent "regular source" patients	0.01	2	0.01	2
Low-income practice	0	0	–0.10	–17
Final estimated probability of visits	0.62	—	0.37	—

[1]Partial estimate is based on the sum of the (nonstandardized) regression coefficients for all patient characteristics listed in appendix B and the physician characteristics listed in appendix C times the mean sample value for each variable.
[2]Estimated incremental effects represent the product of the estimated impact of each barrier variable (its regression coefficient) times the average or modal value of that variable for hospital outpatient departments and for solo practice (actual values listed in Methods).
[3]The percent change indicates what percent each estimated incremental effect is of the initial partial estimate (0.56).

patients leads to further inequality. There is evidence that patients in such low-income practices have significantly lower rates of almost all types of services, regardless of their own economic status. In fact, being in a practice serving exclusively low-income patients appeared to be the single most important cause of lower utilization among all of the financial, organizational, and provider factors considered. This may reflect the effects of additional access barriers or different behavior by providers or patients—but it is unlikely to reflect reduced medical need. In short, separate does not appear to be equal.

(3) Fee-for-services reimbursement, despite both public programs and private insurance, creates a financial barrier whose impact varies inversely with income level (and probably directly, therefore, with medical need). Even taking many other factors into account, higher fees are associated with lower rates for all types of care regardless of family income level. However, higher fees were a *stronger* deterrent to the poor than to the nonpoor for all use measures involving patient discretion, notably children's preventive care. Although the financial barrier created by fee-for-service is certainly not the only obstacle to equalizing access, its unequal impact on the poor contributes to unequal patterns of care.

(4) Various structural features such as distance to the source of care, office waiting time, and sharing patients among physicians also act as barriers to access. The impact of distance is greater for the poor, probably because of their more limited mobility. Scheduled appointments, often not offered in hospital and clinic settings, tend to reduce office waiting times and to promote access. Sharing patients is more common in public settings and seems to discourage patient-initiated care. In light of such structural barriers, particularly in hospital settings, a strictly financial approach to improving access for the poor such as Medicaid is clearly inadequate.

(5) More generally, the findings call attention to the critical role of financial, organizational, and professional arrangements in determining patterns of utilization, a role that has often been neglected in past research. A better understanding of the implications of alternative arrangements is important for the crucial policy decisions that lie ahead.

SUMMARY AND IMPLICATIONS

Data reviewed in this paper indicate that there is still a significant gap between the health status of poor and minority children compared with the rest of the population. Although it is clear that there has been some improvement in access to medical care services for disadvantaged groups, it is equally clear that many disparities remain. Poor and minority children are less likely to see a doctor than other children (especially relative to medical need), and they are more seriously ill when they do get

care. They are less likely to have a regular physician, and even less so a specialist physician.

One of the principal reasons for persistent inequalities appears to be a dual system of medical care in which the poor and minorities use various "public" settings—often hospital clinics—for primary medical care and the more affluent use private providers. During the last decade, in fact, increasing numbers of poor and minority children have come to rely on hospital clinics and emergency rooms for regular care. Such clinics are often ill-equipped to provide coordinated primary care services, and many present substantial financial and organizational barriers to access.

In part because of this dual system, the poor and minorities face greater financial and organizational obstacles in seeking care. They have the highest out-of-pocket average medical expenses, despite public programs such as Medicaid. The process of obtaining care is more time-consuming and inconvenient: it takes the poor and minorities longer to get to their regular providers, they wait longer in offices, and they are less likely to have access to weeknight or weekend office hours, house calls, or telephone contacts. Furthermore, even within the *same* practice settings, the disadvantaged often face greater barriers than the more affluent and receive a different standard of care.

Although these observations are certainly not new, they take on special significance in the current political setting. The dominant concerns now are cost control, cost-effectiveness, and reduction of overutilization. As noted by the Carnegie Council on Children (*165*), issues of equity and access have an old-fashioned ring, harkening back to the 1960's. In the 1980's, we have supposedly moved beyond such issues to other concerns.

At least one major foundation (the Robert Wood Johnson Foundation) has removed access as its principal program priority as of 1980. Conferences focus on such topics as "wellness," lifestyle, and behavioral risks. Leading investigators on access issues now claim that "services are generally equitably distributed" (*46*). There are even those who have begun to challenge the significance of income-related differences in health status. For example, Michael Grossman and colleagues (*166*) contend, based on an econometric analysis of children's health, that "overall, income is not an important factor for explaining health variations among the children in this [national] sample." They conclude therefore that "the present tendency to base Government child health programs on simplistic notions that income is the primary source of differences in children's health will not lead towards fruitful or successful public policy regarding children's health."

This conclusion, like the claim that access problems have been solved, can be disputed.[39] Both seem to belie the data, yet nonetheless appear to

[39]Grossman's conclusion is based largely on the finding that income-related differences in health result from a constellation of factors associated with poverty and not just from income alone. However, this does not mean, as Grossman suggests, that neither increased spending on access nor income redistribution will be effective in improving the health of the poor. Indeed, it is not clear what the relationship of income to illness independent of other correlates of poverty even means, so long as these correlates (such as environmental hazards and educational deprivation) remain correlated. Although it is true that in order to eliminate the link between income and illness, the entire constellation of factors must be attacked, there is no agreement about the best method for such an attack, and Grossman's research does not directly address this issue.

be gaining increasing acceptance. What accounts for the growing rhetoric of equality in the face of continuing evidence of inequality?

Most fundamentally, the answer to this question probably has as much to do with conditions in the larger society as with health care itself.[40] The last decade has been one of growing disillusion. To many, high inflation rates and declining economic productivity have implied the need for "lowered expectations" and reduced Government commitments, especially to programs for the disadvantaged. In health care, soaring medical care costs have lent added urgency to this perceived need for retrenchment. Priorities in health policy have shifted accordingly and have led—almost imperceptibly—to a redefinition of social "reality" (*168*), involving new "facts" (access is no longer a problem for the poor) and new interpretations of old data (there is only a minor link between income and illness).

The new reality is thus political as well as social: shifting political and economic constraints lead to a new agenda for research that leads to new implications for policy. As problems are redefined, new "facts" are accumulated whose influence on our collective understanding may be less dependent on validity than on their congruence with the prevailing political climate.

Certainly, the new rhetoric of equality is well matched to the current mood of fiscal austerity. For example, if income-related differences in health are relatively minor, the income transfers such as those advocated by the recent Carnegie Council on Children (*165*)—as Grossman and colleagues point out—would do little to improve the well-being of children. Also unnecessary are proposals (*165, 169, 170*) that aim to eliminate differential access through universal coverage of prenatal and pediatric services. Such conclusions suggest a conservative approach to health care involving reduced public spending on problems of equity and access. The only drawback is that this vision of reality, however politically appealing, happens to be an illusion. Despite the growing belief that access problems have been solved, most of the evidence instead indicates that they have not. In moving beyond concerns of equity and access, that is to say, we have left the facts behind.

The new conservatism evident in many recommendations for health care policy is presumably rooted in concerns of efficiency rather than of equity. Yet, in the long run, it is probably as inefficient as it is inequitable to neglect the health of disadvantaged children. Short-run savings in the costs of public health care programs are likely to be trivial compared to the long-run costs of lowered productivity due to impaired health and the costs of caring for later medical complications. In this new era of cost-consciousness, it becomes more important than ever to distribute health care according to medical need. Concerns of efficiency and equity converge.

Increasing access to care for the disadvantaged clearly remains an important national goal. This is not to suggest we should ignore other shortcomings of the present health care system, many of which have been discussed. Nor do I mean to imply that the health problems of the poor

[40]The following argument was suggested by the interpretation offered in P. R. Lee, C. L. Estes, and S. Solkowitz (*167*).

are attributable to lack of medical care alone. The multiple conditions of poverty—inferior housing and sanitation, poor nutrition, environmental, and occupational hazards, educational deprivation, and various forms of stress—undoubtedly play a far more important role. Yet, better medical care can alleviate some of the health problems resulting from adverse social circumstance. Likewise, better health research can suggest more effective strategies for dealing with such problems. Today's policy decisions concerning children's health care will influence the well-being of the next generation. They should not be based on the myth of equal access.

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Appendix A. Dependent Variables: Measures of Ambulatory Care Use

Type of Care	Coding	Number of Cases	Mean Value	Proportion of Variation Explained (R^2)[1]
PATIENT-CONTROLLED USE				
Preventive Care				
1. Number of preventive health examinations reported by *respondent*	0,1,2+	679	1.50	0.19
2. Frequency of *children's* preventive health examinations	1 = never 2 = when needed 3 = every year 4 = every 6 months	1,206	2.60	0.27
Initiation of Care				
3. Did *person* have any visits to usual provider during last 6 months?	1 = yes 0 = no	3,033[2]	0.43	0.19
4. Did *child* have any visits to usual provider during last 6 months?	1 = yes 0 = no	1,206	0.57	0.29
5. Has *child* ever had a (nonschool) hearing or ear examination?	1 = yes 0 = no	1,206	0.43	0.24
6. Has *child* ever had a (nonschool) vision or eye examination?	1 = yes 0 = no	959[3]	0.29	0.15
7. Did *child* see a doctor for a past ear problem?	1 = yes 0 = no	371[4]	0.75	0.18
PHYSICIAN-CONTROLLED USE				
Followup Care				
8. Number of followup visits per medical condition to usual provider by *person* in last 6 months	number of visits	690[2,5]	3.10	0.12
9. Number of followup visits per medical condition to usual provider by *child* in last 6 months	number of visits	415[5]	2.77	0.13
Medication				
10. Was medication prescribed for anyone in *family* during last 6 months?[6]	1 = yes 0 = no	573[5]	0.76	0.12

[1] R^2 indicates the proportion of variation in each use measure explained by an equation containing all of the independent variables listed in appendices B and C.
[2] Includes both children and adults.
[3] Asked only of children aged 4–11.
[4] Asked only of children who reported past ear problems.
[5] Asked only of adults, children, and families that had visited their usual providers *more than once* during the 6 months prior to the survey.
[6] The estimating equation includes controls for two indicators of illness severity (children's illness index, and average number of followup visits per condition).

Appendix B. Individual and Family Characteristics in the Regression Model of Ambulatory Use

Characteristics	Coding	Mean Value
Reported Individual Illness Measures[1]		
Child's illness index (a weighted proportion of the following: prematurity, ear problem, hearing test failure, eye problem, vision test failure, sinus trouble, hay fever, asthma, eczema, hives, chronic food allergy, more than 3 colds/year)	continuous index from 0 = no problem, to 1 = all problems	0.11
Child's ear illness index (based on ear problems and hearing test failure)	0 = no problem, to 1 = both	0.25
Child's eye illness index (based on eye problems and vision test failure)	0 = no problem, to 1 = both	0.22
Does person have a current medical or health problem?[2]	1 = yes, 0 = no	0.10
Demographic Factors		
Individual's age (years)[3]	age; age^2; or (1/age + 0.5)	17.4
Individual's sex	1 = female, 0 = male	0.53
Motherhood (age–sex interaction)[2]	age, for females 15 to 45 years; 0 for other females and all males	
Family Structure		
Age of head-of-house (years)	age	34.3
Sex of head-of-house	1 = female, 0 = male	0.31
Family size	number of members	4.5
First-born child	1 = first born, 0 = subsequent child	0.36
Socioeconomic Factors		
Family income (ratio to poverty level)	0 = below poverty, to 7 = seven times poverty	2.1
Occupation of head-of-house	1 = blue collar 0 = white collar	0.56
Education of respondent (years of school)	1 < 8, 2 = 9, 3 = 12, 4 = 13–15, 5 = 16 +	2.96
Race	1 = black, 0 = white	0.93
Length of residence in D.C.	number of years	19.0
Financial Coverage		
Private health insurance	1 = yes, 0 = no	0.71
Public assistance	1 = yes, 0 = no	0.27

Appendix B. Individual and Family Characteristics in the Regression Model of Ambulatory Use (Cont.)

Characteristics	Coding	Mean Value
Health-Related Attitudes of Respondent		
Belief in preventive checkups (index based on three questions on value of asymptomatic examinations)	1 = low, to 4 = high	3.3
Tendency to consult a physician (index, averaging responses to seven questions on illness symptoms and how likely respondent would be to consult doctor for each)	1 = very unlikely, to 4 = very likely	3.0
Salience of health (index of frequency of discussion about health matters)	1 = never, to 4 = very frequently	1.9
Professional health orientation (index based on thermometer ownership and use)	1 = don't own thermometer; 2 = own but don't use regularly; 3 = own and use before calling physician	2.3
Social alienation (index based on Srole's (1956) anomie measures)	0 = not alienated, to 1 = very alienated	0.62

[1]Only one illness measure appears in the corresponding use equation; e.g., ear illness in ear exam equation, general illness index in 6-month visit equations, etc.
[2]Appears only in use equations pertaining to adults (measures 1, 3, and 8 in appendix A)
[3]Different functional forms for age were included in different use equations, based on preliminary analyses, as described in Dutton (*156*).

Appendix C. Health Care System Features in the Regression Model of Ambulatory Use

Structural Barriers	Coding	Mean Value
Financial Barriers		
Provider charge index: based on average charges for pediatric exam, treatment of ear infection, urinalysis, hemoglobin and throat cultures—nonpoor families	value of charges averaged over listed services—nonpoor families	4.42
Provider charge index: (as above)—poor families[1]	charge index—poor families	4.56
Time Barriers[2]		
Distance to provider—nonpoor families[3]	number of miles (0–12)—nonpoor families	3.1
Distance to provider—poor families	number of miles—poor families	2.5
Waiting time in provider's office	number of minutes (0–95)	35.2
Organizational Barriers		
Proportion of patients seen by appointment	1 = none, 2 = less than half, 3 = about half, 4 = more than half, 5 = all	3.1
Days waited for an appointment or waited to be seen	days (0–95)	9.6
Number of hours per week office is open for seeing patients	total hours open (8–168)	48.0
Adequacy of coverage during off-hours[4]	1 = inadequate (no formal arrangements) 2 = adequate (answering service or referral to ER) 3 = very adequate (coverage by MDs in this or other practice)	2.2
Practice Patterns		
Coordination with other physicians' practices	1 = low (solo practice) 2 = medium (share personnel and/or facilities) 3 = high (share patients with other MDs)	1.9
Proportion of patients using practice as regular source of care	1 = 0–25%, 2 = 25–50% 3 = 50–75%, 4 = 75–100%	3.7
Economic level of most families in practice	0 = mixed income levels, 1 = low income only	0.50

Appendix C. Health Care System Features in the Regression Model of Ambulatory Use (Cont.)

Structural Barriers	Coding	Mean Value
Demographic Factors		
Physician's sex (or % female)[5]	1 = female, 0 = male	0.19
Physician's race (or % black)	1 = black, 0 = white	0.32
Training and Experience		
Number of years in practice	years (3–54)	21.5
Physician still in training?	1 = yes, 0 = no	0.12
Number of years of residency	years (0–8)	1.95
Attitudes		
Physicians' general satisfaction with practice	1 = not satisfied 2 = satisfied, 3 = very satisfied	2.3
Preventive medical orientation: % of MD reports of routine screening for vision, hearing, and blood disorders during pediatric exams	continuous	0.41

[1]Separate charge index terms were defined for nonpoor (family income < twice poverty) and poor (income twice > poverty) families. Twice poverty level was used as the income breakpoint instead of poverty level in order to have an adequate number of low-income families using fee-for-service providers.

[2]This information was obtained in the household interview; all other data in this table were obtained in the provider survey. Mean values reported are based on the usual providers of all family members.

[3]The actual distance term for nonpoor families was defined for persons of all income levels; for poor families, the distance term was defined as distance for persons at or below poverty and as zero for all nonpoor persons. Significance statistics for the distance-poor term thus indicate the significance of the *difference* in the impact of distance on the poor compared with the nonpoor.

[4]For the hospital outpatient departments and emergency rooms, "referral to ER" was coded as "very adequate," because patients were presumably referred to the emergency clinic in the same hospital, without having to go elsewhere to satisfy off-hours needs.

[5]The data shown in table 37 represent the actual percent of female physicians in each of the six practice settings. In the regression equations, however, physicians' sex was coded as 0 = all male, 0.5 = both male and female, and 1 = all female; in all cases where only an *organization* was listed as the provider when an individual physician was listed, the sex of that particular physician was coded as male (0) or female (1).

REFERENCES

(1) Davis, K. and C. Schoen. *Health and the War on Poverty: A Ten Year Appraisal*, Washington, D.C.: The Brookings Institution, 1978.

(2) National Center for Health Statistics. "Physician Visits, Volume and Intervals Since Last Visit, United States, 1971." K. Danchik in *Vital and Health Statistics*, series 10, no. 97, Public Health Service, Washington, 1972.

(3) National Center for Health Statistics. "Physician Visits, Volume and Intervals Since Last Visit, United States, 1975." A. Gentile in *Vital and Health Statistics*, series 10, no. 128, Public Health Service, Washington, 1979.

(4) Campbell, R. "Your Health and the Government," In *The United States in the 1980's*. Peter Duignan and Alvin Rabushka, eds., Hoover Institution, Stanford, Calif., 1980.

(5) Rice, T., R. Eichorn, and P. Fox. "Socioeconomic Status and Use of Physician Services: A Reconsideration," *Medical Care* 10: 261–271.

(6) Lefcowitz, M. "Poverty and Health: A Re-examination," *Inquiry* 10: 3–13, March 1973.

(7) Simon, H., A. Raisman, S. Javad, and D. Sachs. "An Index of Accessibility for Ambulatory Health Services," *Medical Care* 17(9): 894–991, September 1979.

(8) Outka, G. "Social Justice and Equal Access to Health Care," Chapter 5 in *Ethics and Health Policy*. Veatch, R. M., and R. Branson, eds., Cambridge, Mass.: Ballinger, 1976.

(9) Fried, C. "Equality and Rights in Medical Care," in *Implications of Guaranteeing Medical Care*, NAS, IOM, Washington, D.C., p. 9, 1976: (Cited in L. Schorr, "Social Policy Issues in Improving Child Health Services: A Child Advocate's View," *Pediatrics* 62(3), September 1978.)

(10) National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, "Ethical Guidelines for the Delivery of Health Services by Department of Health, Education, and Welfare," DHEW Publication No. (OS) 78–0010, 1978.

(11) Center for Community Change, *Beyond the Numbers: The Failure of the Official Measure of Poverty*, December 1979.

(12) "Chartbook," U.S. Department of Health, Education and Welfare, PHS, Office of Health Resources Opportunity, *Health of the Disadvantaged: Chartbook*, DHEW Publication Number (HRA) 77–628, Hyattsville, Md., September 1977.

(13) CHAP Committee on Interstate and Foreign Commerce, House of Representatives, *Child Health Assurance Act of 1979*. Report No. 96–568, Washington, D.C.: U.S. Government Printing Office, 1979.

(14) Lee, K. S., P. Nigel, L. Gartner, *et al.*, "Neonatal Mortality: An Analysis of the Recent Improvement in the United States," *American Journal of Public Health* 70(1): 15–20, 1980.

(15) U.S. Department of Health, Education, and Welfare. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention, 1979*, PHS, Publication Number 79–55071, Washington, D.C.: U.S. Government Printing Office, 1979.

(16) Wallace, H. "Status of Infant and Perinatal Morbidity and Mortality—A Review of the Literature," *Public Health Reports* 93(4): 386–393, July–August 1978.

(17) Kessner, D. *et al. Infant Death: An Analysis by Maternal Risk and Health Care*, N.A.S., Washington, D.C., 1973.

(18) Lerner, M. and R. Stutz. "Have We Narrowed the Gaps Between the Poor and the Nonpoor?" *Medical Care* 15(8): 620–635, 1977.

(19) Rice, D. and K. Danchik. "Changing Needs of Children: Disease, Disability and Access to Care," Paper presented at Institute of Medicine Annual Meeting, Washington, D.C., October 25, 1979.

(20) *Better Health for Our Children: A National Strategy*, Vol. I, Chapter 4. Washington, D.C.: U.S. Government Printing Office, 1981.

(21) National Council of Organizations for Children and Youth, *America's Children*. Washington, D.C., 1976.

(22) National Research Council, *Toward a National Policy for Children and Families*. National Academy of Sciences, Washington, D.C., 1976.

(23) Geiger, H. J. "Hidden Professional Roles: The Physician as Reactionary, Reformer, Revolutionary." *Social Policy* pp. 24–33, March/April 1971.

(24) U.S. Department of Health, Education, and Welfare, *Health, United States, 1978*, Public Health Service, Office of the Assistant Secretary for Health, DHEW Publication Number (Public Health Service) 78–1232, December 1978.

(25) Richmond, J. B. "The Needs of Children," *Daedalus* (Winter): 247–259, 1977.

(26) Wilson, R. and E. White. "Changes in Morbidity, Disability, and Utilization Differentials between the Poor and the Nonpoor: Data from the H.I.S.: 1964 and 1973," *Medical Care* 15(8): 636–647, August 1977.

(27) Freidson, E. *Professional Dominance: The Social Structure of Medical Care.* Chicago: Aldine, 1974.
(28) Mechanic, D. "The Organization of Medical Practice and Practice Orientation Among Physicians in Prepaid and Nonprepaid Settings," *Medical Care* 13: 189–204, 1975.
(29) Dutton, D. B. "Organizational and Professional Characteristics of Health Care Settings and Their Impact on Patients' Utilization." Paper presented at 105th Annual Meeting of the APHA, Washington, D.C., 1977.
(30) Newman, J. F. "Health Status and Utilization of Physician Services," in R. Andersen, J. Kravits, O. W. Anderson, *Equity in Health Services: Empirical Analyses in Social Policy.* Cambridge, Mass.: Ballinger, pp. 153–68, 1975.
(31) Kovner, J. W., L. B. Brown, and A. I. Kisch. "Income and the Use of Outpatient Medical Care by the Insured," *Inquiry* 6: 27–34, 1969.
(32) Richardson, W. C. "Measuring the Urban Poor's Use of Physician Services in Response to Illness Episodes," *Medical Care* 8: 132–142, 1970.
(33) Zola, I. K. "Culture and Symptoms—An Analysis of Patients Presenting Complaints," *American Social Review* 31: 615–630, 1966.
(34) Bice, T. W. *Medical Care for the Disadvantaged,* Baltimore: Johns Hopkins University Department of Medical Care and Hospitals, 1971.
(35) Kravits, J. and J. Schneider. "Health Care Need and Actual Use by Age, Race, and Income," pp. 169–87 in R. Andersen, J. Kravits, and O. W. Anderson (eds.), *Equity in Health Services.* Cambridge, Mass.: Ballinger, 1975.
(36) Andersen, R. "Health Service Distribution and Equity." In *Equity in Health Services.* R. Andersen, J. Travis, and O. Anderson, eds. Cambridge, Mass.: Ballinger, 1975, pp. 9–32., 1975.
(37) Task Force Report, "Education and Training of Health Manpower for Prevention," *Preventive Medicine USA,* New York: Prodist, 1976.
(38) Breslow, L. and A. Somers. "The Lifetime Health-Monitoring: A Practical Approach to Preventive Medicine," *New England Journal of Medicine* 296(11): 601–608, 1977.
(39) Berkanovic, E. and L. G. Reeder. "Can Money Buy the Appropriate Use of Services? Some Notes on the Meaning of Utilization Data," *Journal of Health and Social Behavior* 15: 93–99, 1974.
(40) Aday, L. A. and R. Andersen. *Access to Medical Care.* Ann Arbor, Mich.: Health Administration Press, 1975.
(41) Andersen, R. "Health Status Indices and Access to Medical Care," *American Journal of Public Health* 68(5): 458–463, 1978.
(42) Chen, M. "Comment on Health Status Indices and Access to Medical Care," *American Journal of Public Health* 68 (5): 1027–1028, 1978.
(43) Aday, L. A., R. Andersen, and G. Fleming. *Health Care in the U.S.: Equitable for Whom?* Beverly Hills, Calif.: Sage, 1980.
(44) Marcus, A. F., L. G. Reeder, L. A. Jordan, and T. E. Seeman. "Monitoring Health Status, Access to Health Care, and Compliance Behavior in a Large Urban Community," *Medical Care* 18(3): 253, 1980.
(45) Davis, K. and R. Reynolds. "The Impact of Medicare and Medicaid on Access to Medical Care," in *The Role of Health Insurance in the Health Services Sector,* Rich Rosett, ed. Neale Watson Academic Publications, National Bureau of Economic Research, 391–425, 1976.
(46) Andersen, R. and L. A. Aday. "Access to Medical Care in the U.S.: Realized and Potential," *Medical Care* 16(7): 533–546, July 1978.
(47) Butler, J. and E. Baxter. "Current Structure of the Health Care Delivery System for Children," Chapter 3 in Harvard Child Health Project Task Force, *Developing a Better Health Care System for Children,* Vol. 3, Cambridge, Mass: Ballinger, 1977.
(48) Aday, L. A. "Access to Medical Care in the U.S.: Equitable for Whom?" Paper presented at the Conference on National Health Policy, Hoover Institution, Stanford University, Calif., March 28–29, 1980.
(49) Starfield, B. *et al.* "How 'Regular' is the 'Regular Source of Medical Care'?", *Pediatrics* 51: 822, 1973.
(50) Palmer, R. H. and M. C. Reilly. "Individual and Institutional Variables Which May Serve as Indicators of Quality of Medical Care," *Medical Care* 17(7): 693, 1979.
(51) Noren, J., T. Frazier, I. Altman, and J. DeLozier. "Ambulatory Medical Care: A Comparison of Internists and Family-General Practitioners," *Ambulatory Care* 302(1), 1980.
(52) Dutton, D. B. "Patterns of Ambulatory Health Care in Five Different Delivery Systems," *Medical Care* 17(3): 221–243, 1979.
(53) Thacker, S., E. Salber, C. Osborne and L. Muhlbaier. "Primary Care in Durham County: Who Gives Care to Whom?", *Medical Care* 17(1): 69–78, January 1979.

(54) Walden, D. and L. Rossiter "Pediatric Care: Charges, Payments and the Medical Setting," Paper presented at 107th American Public Health Association Annual Meeting, New York, November 8, 1979.
(55) Thacker, S., E. Salber, and C. Osborne, *et al.* "Primary Health Care in an Academic Medical Center," *American Journal of Public Health* 68(9): 853–857, September 1978.
(56) Brook, R. H. and K. N. Williams. "Quality of Health Care for the Disadvantaged," *Journal of Community Health* 1(2): 132–156, 1975.
(57) Dutton, D. B. and R. Silber. "Children's Health Outcomes in Six Different Systems," *Medical Care* July 1980.
(58) Reidel, R. and D. Reidel. *Practice and Performance: An Assessment of Ambulatory Care*, Ann Arbor, Mich.: Health Administration Press, 1979.
(59) Institute of Medicine, *A Manpower Policy for Primary Care*, IOM Publication 78–02, Washington, D.C., N.A.S., 1978.
(60) Lefkowitz, B. "The Organization of Primary Health and Health-Related Preventive, Psychosocial and Support Services for Children and Pregnant Women," Select Panel for the Promotion of Child Health, (draft), May 8, 1980.
(61) Reynolds, R. "Improving Access to Health Care Among the Poor—The Neighborhood Health Center Experience," *Milbank Memorial Fund Quarterly/Health & Society:* 47–82, Winter 1976.
(62) Zuvekas, A. "Literature Review of Primary Care Centers' Quality of Care, Effectiveness, and Administration and Cost," Department of Health, Education, and Welfare, Fall 1979.
(63) Orso, C. "Delivering Ambulatory Health Care: The Successful Experience of an Urban Neighborhood Health Center," *Medical Care* 17(2): 111–126, 1979.
(64) Snyder, H., O. Nana, and P. Smith. "The Effect of Medical Facilities on Use by the Migrant Workers of California," *Medical Care* 6(5): 394–400, 1968.
(65) Colombo, T., D. Freeborn, J. Malooly, and V. Burnham. "The Effect of Outreach Workers? Educational Efforts on Disadvantaged Preschool Children's Use of Preventive Services," *American Journal of Public Health* 69(5) 465–468, May 1979.
(66) Shragg, H., M. E. Fagenbaum, J. E. Kovner, *et al.* "Low-Income Families in a Large Scale Prepaid Group Practice," *Inquiry* 10: 52, 1973.
(67) Sparer, G. and A. Anderson. "Utilization and Cost Experience of Low-Income Families in Four Prepaid Group Practice Plans," *New England Journal of Medicine* 289: 67, 1973.
(68) Rieseman, C. K. "The Use of Health Services by the Poor," *Social Policy* 5: 41, 1974.
(69) Komaroff, A. and P. Duffell. "An Evaluation of Selected Federal Categorical Health Programs for the Poor," *American Journal of Public Health* 66(3): 225–261, 1976.
(70) Greenlick, M. R., D. K. Freeborn, T. J. Colombo, *et al.* "Comparing the Use of Medical Care Services by a Medically Indigent and a General Membership Population in a Comprehensive Prepaid Group Practice Program," *Medical Care* 10: 187, 1972.
(71) Hester, J. and E. Sussman. "Medicaid Prepayment: Concept and Implementation," *Milbank Memorial Fund Quarterly* 52: 415, 1974.
(72) Dutton, D. B. "Explaining the Low Use of Health Services by the Poor: Costs, Attitudes, or Delivery Systems?" *American Sociological Review* 43: 348–368, 1978.
(73) Levy, J., R. Bonnano, C. Schwartz, and P. Sanofsky. "Primary Care: Patterns of Use of Pediatric Medical Facilities," *Medical Care* 12(9): 881–893, September 1979.
(74) Bullough, B. "The Source of Ambulatory Health Services as it Relates to Preventive Care," *American Journal of Public Health* 64(6): 582–590, 1974.
(75) Gold, M. and R. Rosenberg. "Use of Emergency Room Services by the Population of a Neighborhood Health Center," *Health Services Report* 89: 65, 1974.
(76) Bodenheimer, T. "Patterns of American Ambulatory Care," *Inquiry* 7: 26, 1970.
(77) Scherzer, L. N., R. Druckman, and J. J. Alpert. "Care-Seeking Patterns of Families Using a Municipal Hospital Emergency Room," *Medical Care* 18(3): 289–296, 1980.
(78) Starfield, B., D. Sunborg, S. Horn, and S. Yourtee. "Continuity and Coordination in Primary Care: Their Achievement and Utility," *Medical Care* 14(7): 625–636, July 1976.
(79) Becker, M., R. Brachman, and Y. Kirscht. "A Field Experiment to Evaluate Various Outcomes of Continuity of Physician Care," *American Journal of Public Health* 64(11): 1062–1070, 1974.
(80) Alpert, J. J., L. A. Robertson, J. Koss, M. C. Heagarty, and R. J. Haggerty. "Delivery of Health Care for Children: Report of an Experiment," *Pediatrics* 57: 917–930, 1976.
(81) Breslau, N. and M. Haug. "Service Delivery Structure and Continuity of Care: A Study of a Pediatric Practice in Process of Reorganization," *Journal of Health and Social Behavior* 17: 339–352, 1976.
(82) RWJ Special Report, "A New Survey on Acces to Medical Care" for the Robert Wood Johnson Foundation by L. A. Aday, R. Andersen, G. Fleming, and G. Chiu, No. 1, 1978.

(83) Strauss, A. "Medical Organization, Medical Care, and Lower Income Groups," *Social Science and Medicine* 3: 142–177, 1969.
(84) McDonald, A. D., J. C. McDonald, N. Steinmetz, *et al.* "Physician Service in Montreal Before Universal Health Insurance," *Medical Care* 11: 269 1973.
(85) Yerby, A. and L. Bergner. "Low Income Barriers to Utilization," *New England Journal of Medicine* 278: 541, 1968.
(86) Kindig, D., V. Sidel, and I. Birnbaum. "National Health Insurance for Inner City Underserved Areas: General Criteria and Analysis of a Proposed Administrative Mechanism," in *Effects of the Payment Mechanism on the Health Care Delivery System.* William Roy, ed., DHEW Publication Number (Public Health Service) 78-3227, National Center for Health Statistics Research, Washington, D.C., 1977.
(87) Hirschman, A. O. *Exit, Voice, and Loyalty.* Cambridge, Mass.: Harvard University Press, 1970.
(88) Levine, S., N. Scotch, and G. Vlasak. "Unravelling Technology-Culture in Public Health," *American Journal of Public Health* 59: 237–44, 1969.
(89) Skinner, T., B. Price, D. Scott, and A. Gorry. "Factors Affecting the Choice of Hospital-Based Ambulatory Care by the Urban Poor," *American Journal of Public Health* 67(5): 439–445, 1977.
(90) Diehr, P., K. Jackson, and V. Boscha. "Access to Medical Care: The Impact of Outreach Services on Enrollees of a Prepaid Health Insurance Program," *Journal of Health and Social Behavior* 16(3): 326–340, September 1975.
(91) Advance Data No. 17, National Center for Health Statistics, U.S. Department of Health, Education, and Welfare, February 23, 1978.
(92) Ware, J., M. Snyder, and W. Wright. "Some Issues in the Measurement of Patient Satisfaction with Health Care Services," The Rand Corporation, Publication Number P–6021, November 1977.
(93) Health Insurance Institute, *Health and Health Insurance: The Public's View.* December 1979.
(94) Andersen, R., J. Lion, and O. Anderson. *Two Decades of Health Services.* Cambridge, Mass.: Ballinger, 1976.
(95) U.S. Bureau of the Census, Current Population Reports, Series P. 60, No. 120, Washington, D.C.: U.S.Government Printing Office, 1979.
(96) Davis, K. "Medicaid Payments and Utilization of Medical Services by the Poor," *Inquiry* 13: 122–135, 1976.
(97) Okada, L. M. and T. Wan. "Factors Associated with Increased Dental Care Utilization in Five Urban, Low-Income Areas," *American Journal of Public Health* 69(10): 1001–1009, 1979.
(98) Garner, D. D., W. C. Liao, and T. R. Sharpe. "Factors Affecting Physician Participation in a State Medicaid Program," *Medical Care* 17(1): 43–58, 1979.
(99) Cypen, M. "Access to Health Care Services for the Poor: Existing Programs and Limitations," *University of Miami Law Review* 31: 127–159, 1976.
(100) Haynes, M. A. and M. R. McGarvey. "Physicians, Hospitals, and Patients in the Inner City," in *Medicine in the Ghetto.* J. C. Norman, ed., p. 117, New York: Meredith Corp., 1969.
(101) Schweitzer, S. O. "Incentives and the Consumption of Preventive Health Care Services," *Consumer Incentives for Health Care.* Mushkin, S. J., ed., New York: Prodist, pp. 34–60, 1974.
(102) Colle, A. D. and M. Grossman. "Determinants of Pediatric Utilization." In *NBER Conference on the Economics of Physician Behavior.* V. R. Fuchs and J. P. Newhouse, eds. *Journal of Human Resources,* Vol. 13, Supplement, 1978.
(103) Goldman, F. and M. Grossman. "The Demand for Pediatric Care: An Hedonic Approach," *Journal of Political Economy,* Vol. 86, No. 2, Part I, April 1978.
(104) Inman, R. "The Family Provision of Children's Health: An Economic Analysis," in R. Rosett (ed.), *The Role of Health Insurance in the Health Services Sector.* New York: Neale Watson Academic Publications, 1976.
(105) Phelps, C. E. and J. P. Newhouse. *Coinsurance and the Demand for Medical Services,* Santa Monica, Calif.: Rand Corporation, October 1974.
(106) Newhouse, J. P. and C. E. Phelps. "New Estimates of Price and Income Elasticities of Medical Care Services," in *The Role of Health Insurance in the Health Services Sector.* R. Rosett, ed., Neale Watson Academic Publishers, National Bureau for Economic Research, 1976.
(107) Lairson, D. R. and J. M. Swint. "Estimates of Preventive Versus Nonpreventive Medical Care Demand in an HMO," *Health Services Research* 33–43, 1979.
(108) Phelps, C. E. "Effects of Insurance on Demand for Medical Care," in *Equity in Health Services: Empirical Analyses in Social Policy.* Andersen, R., J. Kravits, and O. W. Anderson, eds., Cambridge, Mass.: Ballinger Publishing Co., 1975.

(109) Pauly, M. V. "Economic Aspects of Consumer Use," *Consumer Incentives for Health Care.* S. J. Mushkin, ed., pp. 219–250, New York: Prodist, 1974.
(110) Wan, T. T. H. and S. J. Soifer. "Determinants of Physician Utilization: A Causal Analysis," *Journal of Health and Social Behavior* 15 (June): 100–108, 1974.
(111) Safer, M. A., Q. T. Tharps, T. C. Jackson, and H. Leventhal. "Determinants of Three Stages of Delay in Seeking Care at a Medical Clinic," *Medical Care* 17(1): 11–29, January 1979.
(112) Barer, M. L., R. G. Evans, and G. L. Stoddart. *Controlling Health Care Costs by Direct Charges to Patients: Snare or Delusion?* Ontario Economic Council, Toronto, Ontario, 1979.
(113) Beck, R. G., and J. M. Horne. "Utilization of Publicly Insured Health Services in Saskatchewan Before, During and After Copayment," *Medical Care* December 1980.
(114) Scitovsky, A. and N. Snyder. "Effect of Conscience on Use of Physician Services," *Social Science Bulletin* June 1972.
(115) Roemer, M. I., C. E. Hopkins, L. Carr, and F. Garfside. "Copayments for Ambulatory Care: Penny-Wise and Pound-Foolish," *Medical Care* 13(6): 457–466, June 1975.
(116) Helms, J., J. Newhouse, and C. Phelps. "Copayments and Demand for Medical Care: The California Medicaid Experience," *Bell Journal of Economics* 1979.
(117) Skinner, E. A., P. S. German, S. Shapiro, G. A. Chase, and A. G. Zauber. "Use of Ambulatory Health Services by the Near Poor," *American Journal of Public Health* 68(12): 1195–1201, December 1978.
(118) Aday, L. A. and R. Eichorn. "The Utilization of Health Services: Indices and Correlates," U.S. DHEW Publication No. (HSM) 73–3003, National Center for Health Services Research and Development, 1972.
(119) Ghez, T. and M. Grossman. "Preventive Care, Care for Children, and National Health Insurance," in "National Health Insurance: What Now, What Later, What Never?" American Enterprise Institute, Washington, D.C., October 4–5, 1979.
(120) Beck, R. G. "Economic Class and Access to Physician Services Under Public Medical Care Insurance," *International Journal of Health Services* 3(3): 341–355, 1973.
(121) Beck, R. G. "The Effect of Copayment on the Poor," *Journal of Human Resources* 9(1): 129–142, 1974.
(122) Beck, R. G. and J. M. Horne. "Economic Class and Risk Avoidance: Experience Under Public Medical Care Insurance," *The Journal of Risk and Insurance* 43: 73–86, 1976.
(123) Gurick, D. and R. Janiel. "Distribution of Private Practice Offices of Physicians with Specified Characteristics Among Urban Neighborhoods," *Medical Care* 14(6): 469–488, 1976.
(124) Rushing, W. *Community, Physicians and Inequality,* Lexington, Mass.: D.C. Heath, 1975.
(125) Dorsey, J. L. "Physician Distribution in Boston and Brookline, 1940 and 1961," *Medical Care* 7: 429–440, 1969.
(126) Parker, A. "The Dimensions of Primary Care: Blueprints for Change," in *Primary Care, Where Medicine Fails.* S. Andreopoulis, ed., New York: Wiley, 1974.
(127) Bashshur, R., G. Shannon, and Metzner, "Some Ecological Differentials in the Use of Medical Services," *Health Services Research* Vol. 6, 1971.
(128) Roghmann, K. and T. Zastowny. "Proximity as a Factor in the Selection of Health Care Providers: Emergency Room Visits Compared to Obstetric Admissions and Abortions," *Social Science and Medicine* 13(D): 61–69, 1979.
(129) Foster, J. and D. Louria. "Waiting Time and Public Satisfaction with Medical Care," Correspondence, *New England Journal of Medicine* 301: 1349–1350, 1979.
(130) Perkoff, G. T. and M. Anderson. "Relationship Between Demographic Characteristics, Patient's Chief Complaint, and Medical Care Destination in an Emergency Room," *Medical Care* 8(4): 309, 1970.
(131) Singer, M., J. Rosefeld, and M. vanHall. "Centralized Appointment System Reduces Patients' Waiting Time," *Hospitals, JAHA* 50: 151–158, March 16, 1976.
(132) Villegas, E. L., "Outpatient Appointment System Saves Time for Patients and Doctors," *Hospitals* 4: 52–57, 120, 1967.
(133) Hertz, P. and P. Stamps. "Appointment-Keeping Behavior Re-Evaluated," *American Journal of Public Health* 67(11): 1033–1036, 1977.
(134) Gates, S. and K. Colborn. "Lowering Appointment Failures in a Neighborhood Health Center," *Medical Care* 14(3): 263–267, 1976.
(135) Acton, J. P. "Non-monetary Factors in the Demand for Medical Services: Some Empirical Evidence," *Journal of Political Economy* 85(3): 595–614, 1975.

(136) Acton, J. P. "Demand for Health Care Among the Urban Poor, With Special Emphasis on the Role of Time," in *The Role of Health Insurance in the Health Services Sector*. R. Rosett, ed. New York: National Bureau of Economic Research, 1976.
(137) Aday, L. A. "Economic and Noneconomic Barriers to the Use of Needed Medical Services," *Medical Care* 12(6): 447–456, June 1975.
(138) Hirsch, G. B. and T. B. Bergen. "Simulating Ambulatory Care Systems," Final Report for Department of Health, Education, and Welfare by Pugh-Roberts Associates, Inc., under contract to OSTI, Cambridge, Mass., January 1973.
(139) Shannon, G. W., R. L. Bashshur, and C. A. Metzner. "The Concept of Distance as a Factor in Accessibility and Utilization of Health Care," *Medical Care Review* 26(2): 143–161, 1969.
(140) Francisco, E. W. "Spatial Aspects of Consumer Use," *Consumer Incentives for Health Care*. S. J. Mushkin, ed., New York: Prodist, 1974.
(141) Kalimo, E. "Determinants of Medical Care Utilization," Research Institute for Social Services, Publication of the National Pensions Institute, Ser, E: 11, Finland, 1969.
(142) Beaucheane, D. and D. Mundel. "Determinants of Utilization of Children's Health Services," in Harvard Child Health Project, Vol. III, *Developing a Better Health System for Children* pp. 55–75, Cambridge, Mass.: Ballinger, 1977.
(143) Simon, J. L. and D. B. Smith. "Change in Location in a Student Health Service: A Quasi-Experimental Evaluation of the Effects of Distance on Utilization," *Medical Care* January–February 1973.
(144) Weiss, J. E. and M. Greenlick. "Determinants of Medical Care Utilization: The Effect of Social Class and Distance on Contacts with the Medical Care System," *Medical Care* 8(6): 456–462, 1970.
(145) Purola, T., E. Kalimo, K. Sievers, *et al.* "The Utilization of the Medical Services and Its Relationship to Morbidity, Health Resources, and Social Factors," Research Institute for Social Services, Helsinki, Finland, 1968.
(146) Donabedian, A. "Models for Organizing the Health Services and Criteria for Evaluating Them," *MMFQ, Health & Society* 50: 103–154, 1972.
(147) Egbert, L. D. and I. Rothman. "Relation Between the Race and Economic Status of Patients and Who Performs Their Surgery," *New England Journal of Medicine* 297(2): 90–91, 1977.
(148) Studnicki, J., R. M. Saywell, and W. Wiechetek. "Foreign Medical Graduates and Maryland Medicaid," *New England Journal of Medicine* 294: 1153–1157, 1976.
(149) Weiss, R. J., J. C. Kleinman, U. C. Brandt, J. J. Feldman, and A. C. McGuinness. "Foreign Medical Graduates and the Medical Underground," *New England Journal of Medicine* 290: 1408–1413, 1974.
(150) Derbyshire, R. C. "Warm Bodies in White Coats," *Journal of the American Medical Association* 232: 1034–1035, 1975.
(151) Kasl, S. and S. Cobb. "Health Behavior and Sick Role Behavior," *Archives of Environmental Health* 12: 246–266, 1966.
(152) Kessner, D. *et al. Assessment of Medical Care for Children, Contrasts in Health Status*, Vol. 3, Washington, D.C., Institute of Medicine, National Academy of Sciences, 1974.
(153) American Medical Association. *Medical School Alumni, 1967*. Chicago: American Medical Association, 1968.
(154) U.S. Bureau of the Census: Occupational Characteristics. PC(2)7A, Washington, D.C.: U.S. Government Printing Office, 1973.
(155) Solon, J.A. et al. "Delineating Episodes of Medical Care," *American Journal of Public Health* 57(3): 401–408, 1967.
(156) Dutton, D. B. "A Causal Model of the Use of Health Services: The Role of the Delivery System," unpublished Ph.D. Dissertation, Massachusetts Institute of Technology, Cambridge, Mass., 1976.
(157) Andersen, R. and J. F. Newman. "Societal and Individual Determinants of Medical Care Utilization in the United States," *Milbank Memorial Fund Quarterly* 51: 95–124, 1973.
(158) McKinley, J. B. "Some Approaches and Problems in the Study of the Use of Services—An Overview," *Journal of Health and Social Behavior* 13: 115-152, 1972.
(159) Tilson, H. H., "Characteristics of Physicians in OEO Neighborhood Health Center," *Inquiry* 10(2): 27–38, 1973.
(160) United States House of Representatives, Committee on Interstate and Foreign Commerce, Subcommittee on Oversight and Investigations, *Background Report on Surgery in State Medicaid Programs*, Pub. No. 92–594 (July), Washington, D.C.: Government Printing Office, 1977.
(161) Strauss, A. L. "Medical Ghettos," *Patients, Physicians and Illness*. Jaco, E.G., ed., New York: Free Press, Second Edition, pp. 381–388, 1972.
(162) Koos, E. L. *The Health of Regionville*. New York: Columbia University Press, 1954.

(163) Willie, C. V. "The Social Class of Patients that Public Health Nurses Prefer to Serve," *American Journal of Public Health* 50: 1126–1136, 1960.

(164) Feinbloom, R. I. "The Physician's Knowledge of Low-Income Families." Paper presented at the meeting of the American Public Health Association, 1967.

(165) Keniston, K. and the Carnegie Council on Children. *All Our Children: The American Family Under Pressure*. New York: Harcourt Brace Jovanovich, 1977.

(166) Grossman, M., D. Coate, L. Edwards, R. Shakotko, and D. Chernichovsky. *Determinants of Children's Health*, Final Report, Grant No. 1–R01–HS–02917, National Center for Health Services Research, DHEW, February 1980.

(167) Lee, K. S., P. Nigel, L. Gartner, *et al.* "Neonatal Mortality: An Analysis of the Recent Improvement in the United States," *American Journal of Public Health* 70 (1): 15–20, 1980.

(168) Berger, P. L. and T. Luckmann. *The Social Construction of Reality*, Garden City, New York: Anchor Books, 1966.

(169) Newberger, E., C. Newberger and J. Richmond, "Child Health in America: Toward a Rational Public Policy," *Health and Safety: Milbank Memorial Fund Quarterly*, Summer 1976, pp. 249–98.

(170) Marmor, T. "Rethinking National Health Insurance," *The Public Interest*, No. 46 (Winter 1977).

BIBLIOGRAPHY

Aday, L. A. *Development of Indices of Access to Medical Care*. Ann Arbor, Mich.: Health Administration Press, 1975.

Aday, L. A. and R. Andersen. "Insurance Coverage and Access: Implications for Health Policy," *Health Services Research* (Winter): 369–377, 1978.

Benjamin, S. D., A. Schochor, M. Hirschfeld, and S. Shelov. "Primary Health Care for the Urban Poor," *Annals New York Academy of Sciences* pp. 69–77, 1978.

Berki, S. E. and M. L. Ashcraft. "On the Analysis of Ambulatory Utilization. An Investigation of the Roles of Need, Access, and Price as Predictors of Illness and Preventive Visits," *Medical Care* 17(12): 1163–1181, December 1979.

Billstein, S. "School-Based Immunization Clinics: A Method for Raising Community Immunization Levels," *Western Journal of Medicine* 126: 73–78, 1977.

Bluford, J. W. "Clinic Expands Adolescents' Access to Care," *Hospitals* October 1, 1979.

Bosch, S. J., R. Merino, M. S. Daniels, E. P. Fischer, and M. Rosenthal. "A Proposed Network to Improve Access to High-Quality Health Care for Medicaid-Eligible Families," *Journal of Community Health* 4: 302–311, 1979.

Brich, J. C. and S. Wolfe. "Consumers Assess Alternative Kinds of Health Services," Paper for 103rd Annual Meeting of Medical Care and Southern Branch Sections of the American Public Health Association, Chicago, Ill., November 20, 1975.

Brody, B. and J. Stokes III. "Use of Professional Time by Internists and General Practitioners in Group and Solo Practice." *Annals of Internal Medicine* 73: 741–749, 1970.

Broida, J. H., M. Lerner, F. N. Lobrenz, and F. J. Wenzel. "Impact of Membership in an Enrolled, Prepaid Population on Utilization of Health Services in a Group Practice," *New England Journal of Medicine* 292(15): 780–785, April 10, 1975.

Brook, R. H. and A. D. Avery. "Quality Assurance Today and Tomorrow: Forecast for the Future," *Annals of Internal Medicine* 85: 809–817, 1976.

Brook, R. H. and K. N. Williams. "Evaluation of the New Mexico Peer Review System: 1971 to 1973," *Medical Care* 14, Supplement, December 1976.

Childs, A. W. and E. D. Hunter. "Non-Medical Factors Influencing Use of Diagnostic X-Ray by Physicians," *Medical Care* July-August 1972.

Colombo, T. J., E. W. Seward, and M. R. Greenlick. "The Integration of an OEO Health Program into a Prepaid Comprehensive Group Practice Plan," *American Journal of Public Health* 59: 641, 1969.

Denerstein, D., L. F. Novick, A. M. Lowewnstein, and J. G. Bianco. "Converting Child Health Stations to Pediatric Treatment Centers: Utilization Patterns of Children Using Three Upper Manhattan Facilities Offering Treatment Services," *American Journal of Public Health* 66(6): 579–582, 1976.

Eisenberg, J. "Sociologic Influences on Decision-Making by Clinicians," *Annals of Internal Medicine* 90–957–964, 1979.

Eisenberg, J., A. Mackie, L. Kahn, and G. T. Perkoff. "Patterns of Pediatric Practice by the Same Physicians in a Prepaid and a Fee-for-Service Setting," *Clinical Pediatrics* 13(4): 352–359, April 1974.

Englemen, E. G. "Attitudes Toward Women Physicians," *Western Journal of Medicine*, 120: 95–100, 1974.

Freeborn, D. K., D. Baer, M. R. Greenlick, and J. Bailey. "Determinants of Medical Care Utilization: Physicians' Use of Laboratory Services," *American Journal of Public Health* June 1972.

Freidson, E. *Profession of Medicine*. New York: Dodd, Mead & Co., 1975.

Freidson, E. and J. Mann. "Organization Dimensions of Large-Scale Group Medical Practice," *American Journal of Public Health* 61(4), 1971.

Fryzel, R. J. "Hospital-Based Group Practice Provides Accessible, Less Costly Primary Care," *JAHA* 50: 109–112, 1976.

Galazka, S. S. and P. B. Lundeen. "An Approach to Locating a Family Practice Office in a Metropolitan Area," *Journal of Family Practice* 8(2): 333–336, 1979.

Garfield, S. R., M. F. Collen, R. Feldman, K. Soghikian, R. H. Richart and J. H. Duncan. "Evaluation of an Ambulatory Medical-Care Delivery System," *New England Journal of Medicine* 294(8): 426–431, 1976.

Gaus, C. R., B. S. Cooper, and C. G. Hirshman. "Contrasts in HMO and FFS Performance," Presented at the meeting of the American Economic Association, Dallas, December 30, 1975.

Geiger, H. J., "Hidden Professional Roles: The Physician as Reactionary, Reformer, Revolutionary," *Social Policy* pp. 24–33, March/April 1971.

German, P. S., E. A. Skinner, S. Shapiro and D. S. Salkever. "Preventive and Episodic Health Care of Inner-City Children," *Journal of Community Health* 2(2): 92–106, Winter 1976.

Gertman, P. M. "Physicians as Guiders of Health Services Use," *Consumer Incentives for Health Care*. S. J. Mushkin, ed., New York: Prodist, pp. 362–382, 1974.

Goldberger, A. S., *Econometric Theory*. New York: Wiley and Sons, 1966.

Gray, L. C. "The Geographic and Functional Distribution of Black Physicians: Some Research and Policy Considerations," *American Journal of Public Health* 67(6), June 1977.

Haberman, P. W. "The Reliability and Validity of the Data," *Poverty and Health*. J. Kosa, A. Antonovsky, I. Zola, eds., Cambridge, Mass.: Harvard University Press, pp. 343–383, 1969.

Hall, O. "The Informal Organization of the Medical Profession," *Medical Care: Readings in the Sociology of Medical Institutions*. W. Richard Scott, Edmund H. Volkhard, eds., New York: John Wiley & Sons, Inc., pp. 149–163, 1966.

Harvard Child Health Project, Vol. I, *Toward a Primary Medical Care System Responsive to Children's Needs*, Cambridge, Mass.: Ballinger, 1977.

Heins, M., J. Hendricks, L. Martindale, S. Smock, M. Stein, and J. Jacobs. "Attitudes of Women and Men Physicians," *American Journal of Public Health* 69(11), November 1979.

Hersch, S. P. "Sweden's Approach to Health Screening for Preschool Children," *American Journal of Orthopsychiatry* 48(1): 33–39, 1978.

Hershey, J. *et al.* "Making Sense of Our Utilization Data," Research Paper Series No. 74–5, Health Services Administration, Stanford University School of Medicine, Stanford, Calif., 1974.

Holahan, J. "Physician Availability, Medical Care Reimbursement, and Delivery of Physician Services: Some Evidence from the Medicaid Program," *Journal of Human Resources* 10(3): 378–402, 1975.

Hulka, B., L. Kupper, J. Cassel, *et al.* "Practice Characteristics and Quality of Primary Medical Care: The Doctor-Patient Relationship," *Medical Care* Vol 13(10): 808–820, October 1975.

Hulka, B., L. Kupper, M. Daly, *et al.* "Correlates of Satisfaction and Dissatisfaction with Medical Care: A Community Perspective," *Medical Care* 13(8): 648–658, 1975.

Jackson, J. E. "Ordinal Data, Ordinary Least Square, and Senate Voting," Presented at the Conference in Structural Equation Models, Madison, Wis., November 1970.

Katz, H. P., J. Pozen, and A. I. Mushlin. "Quality Assessment of a Telephone Care System Utilizing Non-Physician Personnel," *American Journal of Public Health* 68(1): 31–38, 1978.

Kirscht, J. P. "Social and Psychological Problems of Surveys on Health and Illness," *Social Science Medicine* 5: 519–526, 1971.

Kish, L. "Confidence Intervals for Clustered Samples," ASR 22(2): 154–165, 1957.

Koffman, B. D. and K. Merritt. "Analysis of After-Hour Calls and Visits in a Family Practice," *Journal of Family Practice* 7(6): 1185–1190, 1978.

Lan, S. P. M., R. Loewenstein, C. Sinnette, C. Rogers, and L. Novak. "Screening and Referral Outcomes of School-Based Health Services in a Low-Income Neighborhood," *Public Health Reports* 91(6): 514–520, 1976.

Leff, A. M., R. Berger, and D. Lotspeich. "Private Practice in the Public Sector: A Unique Relationship Among Local Government, Physicians, and Health Care Consumers in Cincinnati," *Medical Care* XV(10): 838–849.

Lewis, R. "Oregon County Buying Prepaid Care . . Needy," *American Medical News* July 27, 1979.
Lockett, B. A. and K. Williams. *Foreign Medical Graduates and Physician Manpower in the United States*, DHEW Publication Number (HRA) 74-30, Washington, D.C. Group Health Plan, 1974.
Lorant, J. and L. Kimbell. "Determinants of Output in Group and Solo Medical Practice," *Health Services Research* pp. 6–20, Spring 1976.
Luft, H. S. "Why Do HMOs Seem to Provide More Health Maintenance Services?" *Milbank Memorial Fund Quarterly/Health and Society* 56(2): 140–168, 1978.
Mattera, M. D. "Female Doctors: Why They're on an Economic Treadmill," *Medical Economics* February 1980.
Mechanic, D. and R. Tessler. "Consumer Response in Varying Practice Settings," *The Growth of Bureaucratic Medicine*. David Mechanic, ed., New York: Wiley Interscience, 1976.
Morton, W. and S. Nothman. "Neighborhood Health Center Experience: Implications for Project Grants," *American Journal of Public Health* 65(3): 248–252, 1975.
Miller, L. and J. Goldstein. "More Efficient Care of Diabetic Patients in a County Hospital Setting," *New England Journal of Medicine* 286: 1388–1391, 1972.
National Center for Health Statistics. "Binocular Visual Acuity of Children: Demographic and Socioeconomic Characteristics, United States, 1972" by J. Roberts and K. Duyan in *Vital and Health Statistics*, series 11, no. 112, Public Health Service, Washington, 1972.
National Center for Health Statistics. "Medical Care of Acute Conditions, United States, 1973–74" by L. Verbrugge in *Vital and Health Statistics*, series 10, no. 129, Public Health Service, Washington, 1979.
National Center for Health Statistics. "Monocular Visual Acuity of Persons 4–74 Years, United States, 1971–72" by J. Roberts and J. Ludford in *Vital and Health Statistics*, series 11, no. 201, Public Health Service, Washington, 1977.
Newhouse, J. P. and C. E. Phelps. "Price and Income Elasticities for Medical Care Services," in *The Economics of Health and Medical Care*. Mark Perlman, ed., New York: John Wiley and Sons, 139–161, 1974.
Novick, L. F., A. Mustalish, and G. Eidsvold. "Converting Child Health Stations to Pediatric Treatment Centers," *Medical Care* XIII(9): 744–752, 1975.
Nutting, P. A., J. E. Barrick, and S. C. Logue. "The Impact of a Maternal and Child Health Care Program on the Quality of Prenatal Care: An Analysis by Risk Group," *Journal of Community Health* 4(4): 267–279, 1979.
Okada, L. M. and N. Thomas. "Medicaid, Medicare, and Private Health Insurance Coverage in Five Urban, Low-Income Areas," *Inquiry* 15(4): 336–44, 1978.
Osterweis, M. and E. Bryant. "Assessing Technical Performance at Diverse Ambulatory Care Sites," *Journal of Community Health* 4(2), Winter 1978.
Perkoff, G. T. "An Effect of Organization of Medical Care Upon Health," *Medical Care* 16(8): 628, 1978.
Perkoff, G. T., L. Kahn, and P. J. Haas. "The Effects of an Experimental Prepaid Group Practice on Medical Care Utilization and Cost," *Medical Care* 14(5): 432, 1976.
Peterson, O. L., L. P. Andrews, R. S. Spain, *et al.* "An Analytical Study of North Carolina General Practice," *Journal of Medical Education* 31: entire issue, Part 2, 1956.
Phelps, C. E. "Women in American Medicine," *Journal of Medical Education* 43(8): 916–924, 1968.
Pinsault, R. "The Effect of Prepaid Group Practice on Physicians' Utilization Behavior," *Medical Care* 14(2): 121, 1976.
President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, Minutes from January 14–15, 1980 meeting, Washington, D.C.
Reitzes, D. C. and H. Elkhanialy. "Black Physicians and Minority Group Health Care—The Impact of NMF," *Medical Care* 14(12): 1052–1060, 1976.
Rhee, S-O. "Factors Determining the Quality of Physician Performance in Patient Care," *Medical Care* 14(9): 733, September 1976.
Rhee S-O. "Relative Importance of Physicians' Personal and Situational Characteristics for the Quality of Patient Care," *Journal of Health and Social Behavior* 18: 10–15, March 1977.
Richardson, W. C. "Ambulatory Use of Physicians' Services in Response to Illness Episodes in a Low-Income Neighborhood," Center for Health Administration Studies, University of Chicago, Research Series No. 29, 1971.
Rivkin, M. O. and P. J. Bush. "The Satisfaction Continuum in Health Care: Consumer and Provider Preferences," *Consumer Incentives for Health Care*. Mushkin, S. J., ed., pp. 304–332, New York: Prodist, 1974.
Roccella, E. J. "Potential for Reducing Health Care Costs by Public and Patient Education," *Public Health Reports* 91(3): 223–225, May-June 1976.

Rochelesu, B. "Black Physicians and Ambulatory Care," *Public Health Reports* 93: 278, 1978.
Roos, N. P. "Impact of the Organization of Practice on Quality of Care and Physician Productivity," *Medical Care* 18(4): 347, 1980.
Roos, N. P. *et al.* "Elective Surgical Rates—Do High Rates Mean Lower Standards?", *New England Jou. nal of Medicine* (August 18): 360–365, 1977.
Rosenstock, I. M. "Why People Use Health Services," *Milbank Memorial Fund Quarterly* 44: 94, 1966.
Ross, C. E. and R. S. Duff. "Quality of Outpatient Pediatric Care: The Influence of Physicians' Background, Socialization, and Work/Information Environment of Performance," *Journal of Health and Social Behavior* 19: 348–360, December 1978.
Salkever, D. S., P. S. German, S. Shapiro, R. Horky, and E. A. Skinner. "Episodes of Illness and Access to Care in the Inner City: A Comparison of HMO and non-HMO Populations," *Health Services Research* 1(13): 252, Fall 1976.
Satcher, D. "Does Race Interfere with the Doctor-Patient Relationship?" *Journal of the American Medical Association* 223(13): 1498–1499, 1973.
Scitovsky, A., L. Benham, and N. McCall. "Use of Physician Services Under Two Prepaid Plans," *Medical Care* 17(5): 441, 1979.
Shortell, S. "Determinants of Physician Referral Rates: An Exchange Theory Approach," *Medical Care* 12(1): 13–31, 1974.
Shortell, S. M., W. C. Richardson, J. P. Logerfo, *et al.* "The Relationships Among Dimensions of Health Services in Two Provider Systems: A Causal Model Approach," *Journal of Health and Social Behavior* 18: 139–159, June 1977.
Shortridge, M. H. "Quality of Medical Care in an Outpatient Setting," *Medical Care* 12(4): 283–300, 1974.
Siesinger, D. P., R. C. Tessler, and D. Mechanic. "The Effects of Social Characteristics on the Utilization of Preventive Medical Services in Contrasting Health Care Programs," *Medical Care* 14(5): 392–404, May 1976.
Sloan, F., and J. Lorant. "The Role of Waiting Time: Evidence from Physicians' Practice," *Journal of Business* 50: 486–507, October 1977.
Starfield, B. "Measuring the Attainment of Primary Care," *Journal of Medical Education* 54(5): 361–369, May 1979.
Stewart, J. D. and L. L. Crafton. *Delivery of Health Care Services to the Poor,* Human Services Monograph Series, The University of Texas at Austin, 1975.
Stolley, P. D., M. H. Becker, L. Lasagna, McEvilla, and L. M. Sloane. "The Relationship between Physician Characteristics and Prescribing Appropriateness," *Medical Care* 10(1): 17, 1972.
U.S. Department of Health, Education, and Welfare, Office of Inspector General, "Child Health Care—EPSDT and MCH: A Service Delivery Assessment," (Alan Meyer, Project Leader), November 1979.
Ullman, R., D. Kotok and J. R. Tobin. "Hospital-Based Group Practice and Comprehensive Care for Children of Indigent Families," *Pediatrics*
60(6): 873–880, December 1977.
Williams, K. N. and R. H. Brook. "Foreign Medical Graduates and Their Impact on the Quality of Medical Care in the United States," *Milbank Memorial Fund Quarterly, Health and Society:* 549, Fall 1975.
Wingert, W. A., J. Grubbe, E. F. Lenoski, and D. B. Friedman. "Effectiveness and Efficiency of Indigenous Health Aides in a Pediatric Outpatient Department," *American Journal of Public Health* 65(8): 849–857, August 1975.
Wright, D. D., R. L. Kane, G. F. Snell, and F. R. Woolley. "Costs and Outcomes for Different Primary Care Providers," *Journal of the American Medical Association* 238(1): 46–50, July 4, 1977.

THE ORGANIZATION OF PRIMARY HEALTH AND HEALTH-RELATED PREVENTIVE, PSYCHOSOCIAL, AND SUPPORT SERVICES FOR CHILDREN AND PREGNANT WOMEN

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INTRODUCTION

The organization of primary health, preventive, psychosocial, and support services can be used to further two stated objectives of the Select Panel for the Promotion of Child Health:

- Overcoming gaps in access to health care for medically underserved children and pregnant women
- Ensuring provision of health-related preventive, psychosocial, and support services to all children and pregnant women

Solutions to gaps in service and the provision of adequate services greatly rest in the organization of primary, or entry level, services provided by individual physicians; group practices; hospital outpatient departments (OPD's) and emergency rooms (ER's); health departments; health maintenance organizations (HMO's); the National Health Service Corps; community and migrant health centers; the Early and Periodic Screening, Diagnosis and Treatment (EPSDT) program and similar screening efforts; Head Start; and some mental health, school health, family planning, and disease control programs.

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Essential primary care services for children and pregnant women have been listed by the Panel as follows:

(1) Health Services
- Primary and Preventive Services
  - —Family planning
  - —Prenatal and postnatal care
  - —Well-baby care
  - —Immunizations
  - —Preventive dental services
  - —Screening-periodic examinations for hearing, vision, acute, and chronic diseases
  - —Diagnostic laboratory services
  - —Pediatric treatment
  - —Ambulatory surgical treatment for minor conditions
  - —Pharmaceutical services
  - —Dental examinations and treatment
  - —Referral for special–inpatient care when appropriate

(2) Health-Related Services
- Health-Related Preventive Services
  - —Genetic screening and counseling
  - —Counseling as part of prenatal care
  - —Parent education
  - —Nutrition education
  - —Parent and child counseling on environmental hazards (accidents, poisons)
  - —Counseling at periodic examinations
- Support Services
  - —Outreach, especially to children and pregnant women who have no regular source of care
  - —Transportation
  - —Social services when economic or social problems affect health
  - —Service coordination and linkage
  - —Day care to facilitate health services
  - —Home health and homemaker services
  - —Environmental intervention (sewage, water, home safety)
- Psychosocial Services
  - —Screening for language, developmental, learning, and emotional problems
  - —Crisis intervention
  - —Primary mental health services, including family counseling and family therapy
  - —Services for abused or neglected children and their parents

The organizational division between primary and preventive health and health-related services is not clearcut. For example, many of the settings for primary health care services for underserved populations also provide health-related services, and may succeed because they combine both. Furthermore, in examining models of organization for the health-related services it is important to include providers who undertake these services alone, or in conjunction with certain preventive health services, such as

immunizations, screening, family planning, or a full range of primary care services.

HOW CAN WE OVERCOME GAPS IN ACCESS TO PRIMARY AND PREVENTIVE HEALTH SERVICES FOR CHILDREN AND PREGNANT WOMEN?

Lack of access to primary and preventive health services remains one of the Nation's most pressing health problems. Some observers believe that the single most important child health goal should be to make these basic health services available to every child and pregnant woman.

In "Children's Health Care: The Myth of Equal Access" (see chapter III), Diana Dutton argues that, despite substantial improvements in insurance coverage and the apparent narrowing of utilization gaps for low-income people, certain groups of children and pregnant women (the poor, minorities, and rural residents) still lack adequate access to primary care services. Moreover, the gaps in access and nonmedical factors such as housing, sanitation, and nutrition still contribute to lower health status. Some poignant examples of continuing problems associated with underserved areas and population groups follow:

- The black infant mortality rate has decreased over the last decade, but it is still 23.6 per 1,000 live births, nearly double that for whites (*1*).
- Poor and nonwhite children are hospitalized twice as much as all other children (*2*).
- Persons in medically underserved rural areas have 45-percent higher hospital utilization and 22 percent more chronic limitations than those in all urban areas (*3*).

Who Lacks Access to Primary Care?

A substantial proportion of the poor and near poor cannot pay for care and have no insurance coverage. Many of them (and others) have no primary care providers either in the areas where they live, or within reasonable travel time, or they find that the providers in their areas do not accept them as patients. Approximately 27 milllion persons—half of them are children—can be said to lack access to a regular source of private sector primary care.[1]

Need Estimated From Survey Data

One method to estimate need from survey data is to calculate the number of children who lack a regular source of care or who rely on hospital OPD's or public clinics.

- In 1974, 53 out of 67 million children cited a private physician as their regular source of care. Six million were receiving care in a

[1]Nearly half are receiving care from one of the four types of planned, subsidized primary care programs.

hospital OPD or public clinic, and 7 million had no regular source of care. This last group is considered underserved because without comprehensive primary care programming, their care is likely to be fragmented, episodic, and often too late in the cycle of illness (*4, 5*). Thus, 13 million children can be called underserved (*6*).[2]

- This figure is confirmed by the results of a more recent study funded by the Robert Wood Johnson Foundation which estimated from household survey data that 26 million persons—approximately half of them were children—lack a regular private sector primary care physician (*7*).

Need Estimated by Geographic Clustering

The organizational solution to these access gaps depends largely on attraction of a physician or establishment of a program to provide primary care in a specific geographic area. Thus, it is also useful to estimate need based on a geographic clustering of persons in an area that lacks sufficient primary care providers to meet their needs according to an agreed upon ratio. However, this method is not sufficiently refined to identify many areas where providers will not accept low-income Medicaid patients.

Although somewhat different populations are sure to be counted by using the geographic versus the survey method, the estimates of needs are very similar.

The ratio most often mentioned is 1 primary care provider to every 2,000 persons. This ratio is fairly conservative—higher than that found in HMO's (1:1,500 for a population that is typically healthier than persons in underserved areas) or proposed by experts (e.g., 1:1,750 suggested by Schonfeld (*8*)), and similar to those suggested for nonpoor rural areas (1:2,000 cited by Bridgers (*9*) in Alabama).

By using the ratio of 1:2,000, 28 million residents of rural and inner city areas lack access to a regular source of primary care—roughly half, or 14 million of them, are children. This estimate is derived by calculating the number of primary care providers necessary to bring all rural counties and all high-poverty urban census tracts up to the target ratio. Currently 14,000 additional providers are needed to serve those persons without access to primary care. If one assumes that future physicians will locate voluntarily in underserved areas in the same proportions as they do today, increased overall supply will reduce the need figures to 13,000 additional primary care providers to serve 26 million persons in 1990 (*10*).

The population geographically defined as medically underserved can be further subdivided according to the characteristics of the areas:

- *High-Poverty Underserved Areas.* Twenty million persons—10 million children—live in rural and inner city areas that are not only medically underserved but where at least 20 percent of the population is under the poverty level. These areas share the following characteristics:
  - —Low-birth-weight infants and high infant mortality rate
  - —A high prevalence of activity-limiting chronic conditions

[2]Unpublished data compiled by Kovar.

—High rates of illiteracy
—Prevalence of poor housing, inadequate water and sanitation systems, and poor nutrition
—Prevalence of poor housing, inadequate water and sanitation systems, and poor nutrition

Lack of access to care is most intractable in these high-poverty areas. It is particularly difficult to encourage the location of providers in multiproblem communities that may be unattractive places to live and are largely unable to support a private medical practice. Families in these areas often do not have resources to travel for medical attention. Finally, poor living conditions coupled with an ignorance of good health practices curtail the effectiveness of medical care.

- *Other Underserved Areas.* Approximately 8 million more persons—3 or 4 million children—live in rural underserved areas where some of the same conditions are present although the level of poverty is not as high. In these areas, environmental problems may be less severe and a greater proportion of the population has financial resources that enable them to seek care elsewhere. However, these areas still lack providers because of their geographic isolation and the lack of a sufficient population base to support a standard medical practice.

How Are We Meeting Primary Care Needs?

Of the 13–14 million children without access to a regular source of private sector care, between 6 and 7 million will be served in 1981 by subsidized programs sponsored by Federal, State, or local governments; nonprofit agencies; and community groups. We have divided these subsidized programs into four groups, identifying overlap where possible.

First, Federal programs will serve 4 million children in FY 1981. They include community and migrant health centers, independent national health service corps sites, and maternity and infant care and children and youth projects. Most programs are comprehensive in nature and provide health-related preventive services and support as well as some psychosocial services and primary health care.

Second, health departments in cities of over 100,000 population provide primary care to roughly 500,000 children (*11*). Some health departments receive Federal primary care funds, and the degree of overlap with the first group is unknown.

Third, a number of inner city hospitals serving as "family doctors" for the poor have taken steps to convert their OPD's to comprehensive primary care centers or group practices. Similar to local health department programs, some hospital-based projects receive Federal primary care funds, including 60 hospital-based community health centers, and 50 maternity and infant care and children and youth projects. Children served in these projects are included in the 4 million children previously cited who are receiving federally sponsored health services. Also, the Robert Wood Johnson Foundation sponsors 85 OPD demonstration

projects. However, information is unreliable regarding how many children are served by these or other reformed OPD's that are not federally funded.

Over 1,000 innovative rural primary care projects are subsidized by the Federal Government, the States, private foundations, and communities. About half receive Federal primary care funds and are included in the first group mentioned earlier. Non-Federal rural projects roughly serve 2 million additional children (*12*).

Federal Primary Care Programs

Federal involvement in comprehensive primary care began in the 1960's when first the Department of Health, Education, and Welfare (DHEW) Children's Bureau and then the Office of Economic Opportunity funded demonstration centers with a broad range of health, health-related, economic-development, and employment-related objectives. A discussion of three Federal primary care programs follows.

Community and Migrant Health Centers

Community health centers were first funded by the Office of Economic Opportunity in 1966. A similar public health service program began in 1968; in 1973, all program authority was given to the Public Health Service. Approximately 150 early centers were funded by project grants to community groups and were characterized by user-majority boards; employment of community residents; fairly large size, significant capital investment; and provision of a full range of preventive and support services as well as basic medical intervention.

Two variations from the original model occurred during the mid-1970's. First, new centers, known as "Urban and Rural Health Initiatives," were restricted to a narrower medical approach to care, and health-related services were also reduced in existing centers. Program administrators and beneficiaries criticized the narrower range of services and in 1978 were successful in obtaining legislation that required that most of the services be restored. Second, new centers were smaller and less capital intensive. This departure from the original model was received positively because it provided greater flexibility for meeting the needs of small communities.

Despite attempts by the executive branch to cut back the program in the early and mid-1970's, continued Congressional interest helped maintain growth in small increments. Between 1977 and 1981, the executive branch and Congress supported expansion. Funding increased more than 60 percent and capacity has doubled. In FY 1981 roughly 1,000 community and migrant health centers will serve nearly 6 million persons, including 3 million children, at a grant cost of $398 million. Nearly all current efforts are in very poor underserved areas.

The average rural center today has operating costs of $400,000 and employs 4 primary care providers; the average urban center has total operating costs of $1 million and employs 6–10 primary care providers.

These centers are still funded through project grants, and nearly all have user-majority governing boards and are required by statute to

provide most primary health care, transportation, and some support services. Home health, dental, bilingual and outreach services, and health–nutrition education must be provided if a need has been demonstrated; environmental and psychosocial services are optional and often supported by other grants.

Maternity and Infant Care and Children and Youth Projects

The Federal Government also funds primary care projects for children and pregnant women indirectly through the Maternal and Child Health (MCH) program of formula grants to States.

These programs were originally funded through direct project grants in 1962 by the Children's Bureau of what was then DHEW. Children and youth projects resembled the early community health centers in their range of services, but focused on the particular care needed by children. Maternity and infant care project grants focused on high-risk pregnancies and newborns although some primary care was provided. Both projects had user advisory boards, as distinguished from user-governing boards.

Starting in 1974, funds for children and youth and maternity and infant care projects were incorporated into the State formula grants of the MCH program. States were required to maintain at least pre-1974 levels of service, and it was hoped that they would further replicate these projects in areas that still lacked access to care. However, with no increases in funding, most States chose to continue their other MCH activities rather than to increase the projects they regarded as federally imposed.

In FY 1981, 88 maternity and infant care projects with $62 million in Federal grant funds will serve about 450,000 mothers and 300,000 infants. Ninety-six children and youth projects will serve about 600,000 individuals with $65 million in grant funds.

The National Health Service Corps

The National Health Service Corps had a slightly different origin from the other programs, but it is now operated as an integral part of the Federal primary care system. It is responsible for deploying health professionals, some of whom have service obligations because of scholarships received in training in underserved areas.

When the National Health Service Corps was initiated in FY 1971, most physicians were placed in independent sites and many were placed in areas with the potential for self-sufficiency in health care. This placement occasionally led to conflict with physicians in private practice and left very poor areas unserved by either private or public providers. The current emphasis is on combining provider placement with the broader services available in primary care centers in an attempt to better meet the multiple problems of such areas.

In 1981, the Federal Government will deploy 2,500 primary care practitioners at a field cost of $87 million. About 65 percent of these practitioners will be placed in community and migrant health centers. The remaining 600 will serve in 270 independent practice sites that comprise a slightly different model of health care delivery. Health-related preventive,

support, and psychosocial services are not as likely to be provided, and most independent sites are located outside of very poor underserved areas.

A Federal Primary Care Model: Jackson-Hinds Comprehensive Health Center, Jackson, Mississippi[3]

The Jackson-Hinds Center provides an example of a Federal primary care program operating at its best. The Jackson-Hinds Center was initially funded by the Office of Economic Opportunity in 1970 to provide health and medical services in Jackson, Mississippi, and rural Hinds County. The program consists of:

- A central facility located in a predominantly black section of Jackson offering a comprehensive range of services to about 15,000 patients
- A rural satellite project at Utica serving approximately 4,000 patients, most of whom are black
- An adolescent health project at Lanier High School in Jackson
- Another adolescent health project serving students at the local Utica high school and junior college campus

Funding. The Jackson-Hinds Center has a FY 1980 budget of $2.7 million. This budget includes:

- A $1.9 million Federal community health center grant
- Expected revenues from contracts and third-party reimbursements totaling $779,000 from:
  - —$529,000 in Medicaid and Medicare reimbursements (63 percent of the center patients are Medicaid–Medicare beneficiaries)
  - —$250,000 in other revenues from contracts with the State Board of Health (certification of WIC beneficiaries), the State Medicaid agency (EPSDT screening), and the State Title XX feeding program for the elderly

Services. The Jackson-Hinds Center has retained many features that characterized the early Office of Economic Opportunity programs:

- An active outreach program using community residents trained by the center
- A strong emphasis on innovative programs designed to meet the total medical, social, and environmental health care needs of the target population

In addition to basic primary medical care, the center offers a comprehensive range of ambulatory health services including pediatric care, dental services, X-ray, laboratory, mental health services, a pharmacy, and nutrition counseling. The program also supports a variety of supplemental health care services that have made it possible to intervene effectively in the cycle of poverty and poor health. Among these services are transportation; a child enrichment program providing education and recreational services to high-risk infants and young children; and a

[3]Description from site visit and personal communication with Aaron Shirley, M.D., Director.

Department of Agriculture WIC supplemental feeding program for needy pregnant women, infants, and children under 5 years of age.

The Jackson-Hinds Center is also considered a pioneer in developing effective environmental health services. Over one-third of all Hinds County residents have no running water; one-third have no indoor toilets. The rural Utica satellite operates a model environmental health program under the direction of a Public Health Service sanitarian that uses very simple measures such as building privies, improving drainage, and delivering pure water in barrels to reduce the adverse health effects of poor sanitation.

Staff. Dr. Aaron Shirley, the Center's director, is also president of the Mississippi branch of the National Medical Association and is a member of the Select Panel for the Promotion of Child Health. A native of Jackson, Dr. Shirley attended medical school under a grant arrangement with the State of Mississippi whereby he agreed to return to Mississippi for 5 years to practice medicine. He became the first black physician to serve as a resident at the University Hospital where he specialized in pediatrics. He has helped arrange medical training for a number of other Mississippians who have returned to the area to practice.

The Jackson-Hinds Center employs 130 health personnel and administrative support staff including the satellite projects. Among these personnel are five physicians (one National Health Service Corps), five nurse practitioners (four National Health Service Corps), three dentists, a sanitarian, three environmental health managers, a nutritionist, three nutritional health aides, five outreach workers, and two social service workers.

Service Linkages. Service linkages with other sources of care have been built slowly, in part because of what the Jackson-Hinds Center's staff consider remaining racial and economic discrimination. The center maintains its own mental health services because the area's only community mental health center, on the opposite side of town, is unsympathetic to the poor and minority groups. The Jackson-Hinds Center has no obstetrician, but can arrrange for prenatal care and delivery at the University Hospital. Inpatient care arrangements with their other major hospital, St. Dominic's, are not as strong. That institution has refused to grant admitting privileges to new physicians on the Jackson-Hinds Center's staff although new physicians in other group practices are automatically granted these privileges if an existing member of the group is on the hospital staff.

Primary Care Programs Sponsored by Urban Health Departments

Health departments in the United States originated during the mid-nineteenth century in response to epidemic fears and in reaction to demands by the poor and underserved for improvements in environmental conditions and in circumstances of neglect. Their initial goals focused on sanitation and public health protection, and reached targeted populations with discrete personal health services usually provided in clinics or dispensaries.

Some of today's health departments have continued the emphasis on public health and discrete personal health services.

However, health departments vary more in the scope of services and orientation than is generally recognized. Some urban health departments have provided comprehensive primary care for the underserved population for many years. Others, partly stimulated by the Federal involvement in primary care during the 1960's, began to operate more comprehensive primary care centers during the last decade (*11*). Three types of health department programs have been identified (*13*):

- Urban health departments delivering comprehensive primary care in health centers and satellite clinics
- Urban health departments offering discrete services (e.g., screening, family planning, and well-baby clinics) through outreach, mobile clinics, and satellites. These services may also serve as entry points to other available programs.
- Rural health departments offering somewhat less comprehensive primary care to a large, sparsely populated area. The delivery model may be satellites or mobile clinics. A discussion of rural delivery models follows.

Health departments also vary in sources of funding. The larger rural health departments found mostly in the Southeast United States are heavily State supported while urban health departments, especially in New England, rely primarily on local support (*14*). Those departments providing comprehensive care are usually either direct recipients of Federal primary care funds (e.g., Denver, Cincinnati), or have created networks including Federal programs and are funded from their own sources (e.g., Boston).

By using a rough extrapolation of existing data, approximately 2.5 million children get care from public health clinics (*6*); about 500,000 of these may be getting more comprehensive primary care from larger urban health departments (*11*).

A Health Department Model: Denver Neighborhood Health Program, Denver, Colorado[4]

One exemplary model of health department primary care is the Neighborhood Health Program operated by the Denver Health and Hospitals Agency. This program includes:

- Two comprehensive health centers
- Seven satellite health stations
- Ten well-baby clinics

The Neighborhood Health Program recorded 343,000 patient visits during the year ending June 30, 1978, including 84,000 pediatric visits and 34,000 maternity and infant care visits.

Funding. The Neighborhood Health Program had a budget of about $12 million in FY 1980. It receives Federal funds from the community health

[4]Description from a case study by Moos and Miller (*13*) and personal communication with Arden Miller, M.D.

center program and for maternity and infant care and children and youth projects (total $900,000), Medicaid reimbursement ($3.9 million), and Medicare reimbursement ($2.25 million).

The State of Colorado reimburses the Denver Health and Hospitals Agency for 50 percent of the costs incurred by those clients with no alternate payment mechanisms. The City of Denver pays the remainder of the costs.

Services. The two comprehensive health centers provide a full range of primary care services, including adult medicine, maternity, family planning, gynecology, pediatric, and dental care. The smaller satellite stations offer many of these services but they will refer clients to a comprehensive center or to the hospital for some specialized treatment.[5]

Staff. The Denver Health and Hospitals Agency is headed by Abraham Kauvar, M.D., who is credited with having recruited high-quality staff, integrating ambulatory care into a citywide network, and attracting nonpoor patients who previously used the fee-for-service sector into the system.

Staff in the Neighborhood Health Program total 550. Nurse practitioners are primary providers of care, and indigenous neighborhood aides work with social workers to manage caseload and develop a family-oriented approach. Primary care staff at satellite stations usually includes two pediatricians, two child health associates or pediatric nurse practitioners, a part-time physician, and a nurse practitioner for obstetrics.

Service Linkages. The Neighborhood Health Program is fully integrated with the traditional public health activities of the Denver Health and Hospitals Agency. For subspecialty and inpatient services the 385-bed Denver General Hospital and its outpatient clinics are also part of the network.

Clinical social workers assist clients in obtaining other services, and field nurses provide extension of ambulatory care services through home health visits. Mental health services administration is separate from the Neighborhood Health Program, but a psychiatrist, a psychologist, social workers, and psychiatric nurses (federally funded through the National Institute of Mental Health) provide services at the two comprehensive health centers.

"Reformed" Hospital Outpatient Departments

Approximately 4 million children receive care in traditional hospital outpatient departments and emergency rooms that have been characterized by numerous uncoordinated specialty clinics, lack of patient-oriented case records, long-waiting times, and excessive use of emergency facilities.

However, recent changes in some traditional hospital outpatient services have occurred for several reasons. First, utilization of outpatient

[5]Increased use of these satellite stations has decreased the use of less comprehensive well-baby clinics.

departments and emergency rooms has increased substantially. From 1952 to 1977, emergency room visits rose from 10 million to 62 million (*15*). From 1962 to 1975, annual outpatient visits rose from 45 million to 128 million (*16*). It is now estimated that as many as 25 percent of all physician visits occur in outpatient department and emergency room settings (*17*). Second, at various Government levels and among philanthropic foundations the realization has been that hospitals are the only "family doctor" that many persons have and must therefore be included in designing improvements in health care.

Information on expenditures and number of persons served in "reformed" outpatient departments is extremely limited. Two major changes have occurred.

Primary Care Centers

Hospital outpatient departments have been converted to primary care centers providing comprehensive services through staff physicians, nurse practitioners, and other health-related personnel. These progrms are supported by city, State, Federal, and institutional resources. Of the 1,000 Federal community and migrant health center grants in 1981, 60 will be hospital based. In addition, 16 of 88 maternity and infant care projects and 34 of the 96 children and youth projects are operated by hospitals. Finally, of the 85 hospital primary care projects funded by the Robert Wood Johnson Foundation, roughly one-third are primary care centers.

Group Practices

Hospitals have helped to develop and have affiliated with group practices for all or part of the outpatient care for which they are responsible. These programs are supported by public and private funds. They vary according to proximity to the hospital, population served, organizational structure, and staff. Some of the group practices provide fewer health-related services than hospital-based primary care centers. About two-thirds of the hospital primary care projects sponsored by the Robert Wood Johnson Foundation are of this type.

A Reformed Outpatient Department Model: San Francisco General Hospital's Division of Outpatient and Community Services, San Francisco, California[6]

Originally aided by an Office of Economic Opportunity Outpatient Improvement Grant, the San Francisco General Hospital has instituted major changes in its outpatient department to improve efficiency, flexibility, and accessibility to the community. The program uses a family-oriented comprehensive care team approach in the outpatient department and three community satellite clinics. In 1979, 203,000 outpatient visits were made; 48,000 visits were to the satellites and the remainder were to the hospital.

[6]Description from personal communication with Donald Fink, M.D., former Director.

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Funding. The total budget for 1979 was $3.77 million of which approximately $2.6 million were funded by the city, $800,000 were third-party payments, $150,000 were direct-patient payments, and the remainder were from Federal sources, including the community health center, family planning, and Title XX social service funds.

Staff. Physicians from the University of California Medical School contract with the hospital to provide services in the satellites and the outpatient department. Staff in the three satellite centers includes eight residents, two family health workers, a nurse practitioner, nutritionists, and a social worker. These settings are also training sites for residents, nurse practitioners, and other professionals.

Services. The San Francisco program provides pediatric, maternity, family planning, adult, and family and nurse midwife care. Dental and mental health services have also been included at the satellite clinics, and health workers at these facilities provide outreach, followup, social services, health education, translating, and patient advocacy.

Service Linkages. Links with other hospital services are maintained through an interdisciplinary team that includes physicians, nurses, and business staff. The program has developed a mental health program together with the hospital and a transportation system to bring patients from satellites to the hospital.

External linkages include:

- Referral arrangements with community mental health centers
- Coordination with city public health nursing for special and general pediatric services
- Community linkages, including referral arrangements with schools (e.g., for family planning and adolescent pregnancy programs) and community organizations (e.g., for child and sexual abuse)

Rural Health Delivery Projects

Because the most serious gaps in access to primary care occur in rural areas, a variety of health delivery projects supported by State and nonprofit sources predated most of the other subsidized programs discussed in this paper. For example, the Frontier Nursing Service was established in 1925 to provide primary health care in remote areas of Kentucky (*18*). Construction and operation of rural health centers has been supported by private foundations like the Commonwealth Fund, and some centers have been supported in conjunction with State health departments (*19*). Similar programs were sponsored by labor unions such as the United Mine Workers for their members.

Today subsidized rural health care is provided by a variety of similar programs as well as federally funded centers and rural hospitals (*20*). Recently the Department of Health and Human Services (DHHS), in conjunction with the Robert Wood Johnson Foundation and the University of North Carolina, undertook a major evaluation of subsidized rural projects. The first phase of this evaluation, recently completed, is an attempt to quantify and describe the scope of such projects. Data are

available for approximately 1,000 of 1,100 projects that were found to be of several types.

Federally Funded Rural Primary Care Centers

Of the 1,000 rural projects for which data are available, approximately half are federally funded. These projects were previously described in this paper.

Non-Federal Rural Health Delivery Projects

The remaining 500 rural projects are not federally funded. They include:

- Freestanding primary care centers that provide most of the health and some of the health-related services required in federally funded programs. A large proportion of these projects are funded or operated by State or local health departments.
- Subsidized physician practices that usually provide traditional primary health care services.
- Small satellites staffed by nurse practitioners that provide an entry point into a system of care and are affiliated with hospitals or physician practices.

Together, these non-Federal rural projects serve 4.8 million persons, over 2 million of whom are children. The median number of physicians per project is three. The average cost per project is $270,000. One-third of the revenues for non-Federal projects are direct payments from patients; one-fourth are from Medicare and Medicaid; one-fourth are from private insurance; and the remainder are from grants, donations, and other sources.

A Rural Delivery Model: North Carolina Rural Health Services[7]

The North Carolina program was initiated in 1973 to increase the availability of primary care in underserved rural areas of the State. Communities initiate requests for aid in establishing a rural center and are judged on the following criteria:

- Need for primary medical care (and certain other community characteristics)
- Degree of community support for the program
- Availability of physician backup for the health center team
- Ability to recruit physicians' assistants or family nurse practitioners
- A viable, efficient management plan

Currently, 27 centers exist; most are in towns with populations of 500–1,000 and serve an estimated 80,000 people.

[7]Description from personal communication with James Bernstein, Director, North Carolina Office of Rural Health Services.

Funding. North Carolina gives the community up to $25,000 for construction and renovation of a facility. The community is required to match the amount by 20 percent contributed from a minimum of 750 families to indicate their interest. The State also provides training assistance for nurses and physicians who will provide the services. The State expects each clinic to become self-sufficient (usually over 3 years) through patient fees, private third-party payments, and Federal reimbursement.[8]

Staff. The typical clinic includes one or two physicians' assistants or family nurse practitioners, a one-half day a week backup physician (usually within 15–20 miles of the clinic), and a receptionist who may both perform laboratory tests and be responsible for bookkeeping. For many areas that have no physician, the training of a local resident as a nurse practitioner who will return to the area has been quite successful. The University of North Carolina Family Nurse Practitioner program assists in providing staff for the rural clinics. However, the program also includes physician group practices where they are preferred by the community and where physicians can be recruited.

Services. Clinic staff provide basic primary care services, including treatment of minor injuries and illnesses, physical exams, checkups, health information, and monitoring of chronic conditions.[9] Where physician group practices exist, more extensive primary care services are offered.

Service Linkages. The rural health clinics use community health centers and Appalachian Regional Commission programs for referrals, as well as private physicians, hospitals, and area health education centers.

How Can We Close Gaps in Access to Primary Care?

Issues and Options

The following issues are relevant for ensuring adequate access to primary care for children and pregnant women:

- Which, if any, of the organized primary care settings previously described should be expanded, and what should be the relative emphasis each type of program receives?
- What should be the relationship between grant funding and insurance revenues to support organized primary care programs and what level of Federal funding is appropriate?
- What administrative arrangements are most likely to translate Federal funding into effective, efficient primary care services?

[8] Although most clinics are not in extremely poor areas, between 4 and 15 percent of the patients have no reimbursement source; therefore self-sufficiency is a problem for some clinics.

[9] Pre- and postnatal care and maternity services are not provided directly.

Options

Each of the programs described earlier can be considered an appropriate model to be used to close gaps in access to primary care. Because they are, by definition, innovative attempts to solve certain problems not dealt with by the private, nonsubsidized sector, they all possess certain desirable attributes for primary care organizations. However, they vary in the degree to which they meet specific criteria and can be evaluated according to these variations.

Criteria for Decision

Criteria for evaluating the different types of subsidized primary care programs include the absence of access barriers, comprehensiveness of primary health and health-related services, continuity of care, links to other levels and sources of care, participation and satisfaction of consumers, clinical effectiveness, and efficient operation at reasonable cost. The first five items are similar to those listed in a report by the Institute of Medicine (*21*); the sixth and seventh reflect empirical evidence of how well programs are working.

More evidence exists about federally funded primary care centers than about other programs. This condition may appear to bias the presentation; however, if characteristics of the other programs are similar, it should be possible to assume that they would share the attributes of federally funded centers.

Eliminating Access Barriers. Substantial evidence suggests that federally funded primary care programs eliminate a variety of access barriers. According to recent figures, 80 percent of the families served have incomes under 150 percent of the poverty level. Most pay nothing for care although those with family incomes above the poverty level are charged on a sliding fee scale. Eighty percent of those served are black or Hispanic (*22*). Moreover, the programs are usually placed in areas with substantial shortfalls of primary care providers. Some complaints have been voiced regarding competition with private physicians or State and local government efforts. However, studies indicate that a majority of urban users of Federal primary care centers previously received care from hospital outpatient departments and emergency rooms (*23–25*). In addition, evidence suggests that both urban and rural centers have increased the utilization of health services (*26–28*).

Rural health delivery projects are aimed at overcoming some of the most serious geographic barriers in the Nation. Thus, focusing on the poor and minorities is important but in some areas it may be a secondary focus. According to one survey more than 75 percent of users in non-Federal rural projects are white (DHHS-Robert Wood Johnson-University of North Carolina). The fact that about 60 percent of costs are covered by patient payments or private insurance indicates a large nonpoor population.

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Hospital outpatient departments and health department clinics also lower certain access barriers by their location in underserved areas. This fact is evidenced by the high proportions of the poor and minorities currently served. Of the 6 million children served in 1974, 60 percent were poor or nearly poor; 50 percent were minority (*6*). However, unless the outpatient departments are reformed along one of the models suggested earlier, the lack of organization and insensitivity to needs of the underserved are barriers to patient-initiated use. Thus, care may be fragmented, and important preventive services may not be provided in sufficient volume (*4, 29*).

Comprehensiveness of Services. The range of health services offered by a health organization can be an important determinant of quality. In addition, the range of health-related services offered by an organization can be essential in overcoming access barriers. For example, support services such as outreach, provision of a bilingual staff, transportation, health education, and environmental intervention may be necessary to bring the poor and underserved to the clinic and maintain effective care for them (*13*). The provision of psychosocial services with primary health care is an important means of reaching those who need basic mental health care (*30*). Health-related counseling and education are essential components of preventive services (*31*).

Federally funded primary care centers emphasize preventive and health-related support services and must provide funds to many as a statutory requirement. This provision is a major strength; it helps them reach populations that otherwise might not be reached and adds to the effectiveness of health care. Evaluations of the Federal programs often credit the range of services for success in overcoming access barriers and ensuring appropriate care. For example, Birch and Wolfe (*32*) compared pregnant women who used community centers with outreach services, traditional hospital outpatient departments, and Medicaid physicians and found that the women who used health centers were most likely to be satisfied with their obstetric and pediatric care and most likely to make postnatal visits.

However, controversy regarding the range of required services exists. Some health departments consider the Federal service requirements unnecessarily rigid and believe that some of the required treatment and many of the support and psychosocial services are unnecessary luxuries in a primary care setting. Hospital outpatient departments, on the other hand, may include a variety of medical and possibly psychosocial services because of their past orientation to specialty clinics, but they may not always perceive the need for health-related preventive and support services. Rural delivery projects may simply lack the population base to support a broad range of services, or they may be located in areas that are better off economically, making certain support services less necessary.

Few studies have focused on the differential effectiveness of primary care that is less comprehensive than the Federal model. More research is needed to determine which services are essential and the degree to which linkages can substitute for single-site delivery. The DHHS-Robert Wood

Johnson-University of North Carolina rural health evaluation may answer some of these questions.

Continuity of Care. In some ways, the concept of continuity of care is difficult to distinguish from that of the range of primary care services offered in a particular facility. However, continuity relates less to the presence of certain services than to how the care is organized for an individual child and his–her family. A single, complete medical record, an identifiable person responsible for case management, and appropriate followup are presumed to be essential to quality care. Continuity in a clinic or group setting can be further improved by assigning a child or a family to the same team of providers for every visit.

Morehead's studies of clinical management and quality of care, measured by recordkeeping, indicate that Federal primary care programs are at least equal and sometimes superior to other established providers including private physicians, and that health department primary care programs are superior to private physicians and outpatient departments (*33–35*). Many Federal primary care centers pioneered the team approach as well and have found it very effective (*35–37*).

Health department programs are placing increasing emphasis on identifiable case managers and central recordkeeping, but may still need improvement. The team approach is often difficult for health departments because of the persistence of supervisory structures along functional lines.

Hospital outpatient departments experience the greatest problems with continuity because of their specialty clinic orientation; indeed, breaking down the fragmentation and initiating central triage and recordkeeping is one of the major goals of "reformed" outpatient departments. Some professionals have found the team approach very effective in accomplishing the needed change.

In rural delivery projects, the decreased range of services and the necessity for frequent referrals may make continuity more difficult. On the other hand, the familiarity with patients that is possible in a small community and the employing of nurse practitioners interested in health maintenance and total care probably enhance continuity.

Links to Other Services. A primary care center's ability to form workable relationships with providers of secondary and tertiary health care and specialized health services is also essential for continuity and quality.

Federally funded primary care centers can be very effective internally but they may find it difficult to establish outside connections. This situation can be traced to a history of direct Federal funding to community groups, thus circumventing established providers and State and local governments. Today, problems with financial barriers, racial, and cultural discrimination and refusal by some traditional institutions to accept these programs as sources of high-quality care still exist. The difficulty of the Jackson-Hinds Center in obtaining admitting privileges for its staff physicians is one example. However, problems can also be related to lack of Federal, State, local, and private sector coordination in selecting the location of programs. This factor can lead providers of

specialized or inpatient services to perceive Federal primary care centers as a threat.

Health department programs and rural delivery projects may face some of the same problems in obtaining secondary and tertiary care for their patients. However, where these programs are part of the overall political structure in a community, resistance may not be as great. Some health department clinics are part of a system including hospitals and some rural projects were established as satellites of hospitals or as part of a State health department network. Hospital outpatient departments have a major advantage with their built-in ties to all levels of care.

Not surprisingly, some of the most effective solutions to linkage problems involve networks of federally funded centers, health departments, and hospitals. The Denver program described earlier is one such solution. Another example is the continuum of perinatal care created by Boston's Department of Health and Hospitals. Routinely, referrals are made from health departments and Federal primary care centers to the site of delivery and back, with careful transfer of records.

Participation and Satisfaction of Consumers. The strong community participation in federally funded primary care programs and especially the requirement that community and migrant health centers have governing boards with a user majority was very important when much of the health care establishment was perceived as being insensitive to the poor and minorities. User-majority boards contributed to the acceptance of the project by and accountability to the target population, and use of preventive services helped foster a new generation of community leaders. However, conversely, the role of user-majority governing boards was not always well defined and sometimes led to infighting and inefficient operation. In addition, enmity has occurred between some user-governing boards and the State and local political establishment.

Health departments are representatives of a duly elected government, but that government usually covers a much larger area than the neighborhood served by a primary care center, and government officials are not necessarily users of such centers. The small size of the target population of community-based nonfederally funded rural health projects is an advantage as is community support through local fund raising (e.g., the North Carolina program). However, other rural projects are operated by health departments or hospitals with little participation by the communities served. Hospitals, especially those in inner-city areas, frequently have community advisory boards, but consumer governance is confined mainly to those "reformed" outpatient departments that receive community health center funds.

To some degree the user-majority governing board requirement has kept State and local governments and hospitals from applying for Federal primary care funding. This restraint has led to the creation of a new primary care program by the Federal statute specifically for hospitals, with only a consumer advisory board. It has also led to an amendment allowing up to 5 percent of community health center funds to be allocated to government units that are forbidden by their own laws to have user-

majority governing boards. However, a number of hospitals and local governments receive community health center funding and adhere to the user-majority governing board requirement. Some DHHS regional offices seem to be more flexible than others in working out arrangements acceptable to both consumers and potential grantees such as hospitals and government units.

The issue of how best to enlist consumer participation, such as the issue of comprehensiveness of service, is a complex one where more research is needed before making major changes in Federal policy.

Clinical Effectiveness. A number of studies indicate that improvements in health status are attributable to federally funded primary care centers. Anderson and Morgan (*38*) found infant mortality decreased by 50 percent after the establishment of primary care centers in the rural South. Gordis (*39*) attributed a 60-percent decrease in rheumatic fever in Baltimore areas served by primary care centers to early detection and treatment of streptococcus infections.

The rate of hospitalization, which is a measure of both health status and cost savings, has been shown to be reduced significantly by primary care centers. An extensive baseline study in 13 cities and a followup study in 5 cities (Atlanta, Kansas City, Boston, Charleston, and East Palo Alto) found hospital days were reduced by 25 percent for child and adult users of community health centers compared with all similar nonusers in control groups and 22 percent for users compared with those in control groups using a private physician (*40*). Similar results have been found by others (*41, 42*). Finally, emergency room visits by children were reduced 38 percent by primary care centers in Rochester (*43*).

Where hospital outpatient departments resemble comprehensive primary care centers in services and organization, similar clinical effectiveness has been found. For example, Sussman (*44*) found that users of a hospital-based health center in Boston had significantly lower use of emergency rooms than nonusers.

The provision of comprehensive primary care services by health departments, at times in conjunction with Federal primary care programs, has also been associated with health improvements. For example, between 1970 and 1978, the Cincinnati (Ohio) Health Department increased first trimester prenatal care threefold and infant mortality was reduced by 8 percent. During provision of primary care services between 1970 and 1977, Maricopa County (Arizona) had its low-birth-weight rate reduced by 16 percent, and Pickens County (South Carolina) had its nonwhite infant mortality rate reduced by 38 percent, from 40.7 to 25.3, between 1970 and 1973.[10] Finally, Chabot (*45*) found that Denver's Neighborhood Health Program resulted in a 25-percent reduction in infant mortality.

Reasonable Cost and Efficiency. Recently, federally funded primary care centers have shown an impressive record in reducing costs. In 1974, the average comprehensive individual encounter in a community health center cost $44; in 1979, the same encounter cost $32 without allowing for

[10]Personal communication from Arden Miller, M.D.

inflation. Another method of analysis is to compare community health center encounters with visits by all Medicaid recipients, although the content of the encounter may be somewhat different. The average Medicaid visit for physician and ancillary outpatient services cost $55 in 1979, compared with the $32 per encounter in a community health center.

The lower direct, or ambulatory care, cost of primary care centers has been attributed to lack of incentives to recommend excess followup visits (because most providers are salaried), use of nurse practitioners and physicians' assistants, and provision of preventive health services. The DHHS is currently seeking data comparing total inpatient and outpatient Medicaid costs for users and nonusers of primary care centers.

Direct costs in most health department clinics and non-Federal rural delivery projects are somewhat lower than costs in Federal primary care centers because of the smaller range of services provided. Evidence of savings in total costs, including inpatient care, should be sought in these settings as well, to compare the cost–benefit ratios with those in more comprehensive settings.

Direct costs in hospital outpatient departments tend to be higher than those in federally funded primary care centers because of employment of more professionals, high overhead, and possible subsidization of inpatient care. Outpatient departments may pose serious problems with indirect costs because unlike freestanding centers, the incentive is to hospitalize patients. These problems have led designers of "reformed" outpatient departments to favor separating the outpatient department's administration and finances from the hospital's administration and finances.

Conclusions

Based on the previous analysis, it seems reasonable to recommend additional Federal funding for startup and subsidies of services in each of the organized primary care settings described earlier and specifically:

- That the current Federal model of comprehensive primary care, under Sections 329 and 330 of the Public Health Services Act, with placement of National Health Service Corps providers be considered the major method of expanding access to the underserved.
- That funding for hospital-based primary care programs under Section 328 of the Public Health Services Act be increased to provide better services to children who use outpatient departments and emergency rooms.
- That health departments be encouraged to apply for Federal primary care funds under the existing terms. Local systems that have combined Federal primary care programs with health department or municipal hospital services, such as those in Denver and Cincinnati, seem especially promising. Variations from the Federal model in services and consumer governance should be studied carefully before departing from existing policy. However, program administrators should be flexible in working out arrangements that satisfy needs of consumers and grantees.

- That DHHS fund demonstration service delivery projects that are suited to rural areas with sparse populations, but which are not necessarily poor areas. In particular, the nurse-practitioner satellite model, which provides an entry point into a more comprehensive system could be emphasized.

Levels and Sources of Funds

Options

Various combinations of insurance revenues and grant funding are possible for the financing of primary care:

- Terminate grants and rely on insurance only
- Keep grants at current levels and rely on increased insurance for growth
- Increase grant funding and use increased insurance in an integrated growth plan
- Rely on grants only

Criteria for Decision

The options are evaluated against the following criteria: likelihood of ensuring access to primary care, assurance that startup costs and health-related services in primary care centers are paid for, sensitivity to varying financial needs of communities, and increasing sources of nondiscretionary funding.

Likelihood of Ensuring Access to Primary Care. Substantial evidence suggests that improvements in the insurance system and private sector activities alone will not ensure access to primary care in underserved areas. First, a DHHS review of 32 studies indicates that potential physician income is not a decisive factor in determining private physician location. Studies varied in their emphasis on income potential, geographic origin of provider and spouse, place of training, social and cultural opportunities, professional relationships, and existence of practice setting. Second, although recent evidence suggests that physicians have recently been more likely to settle in medium-sized rural towns, virtually no increase was found in the physician-to-population ratios in the two most rural county categories, and a slight increase was found in very poor urban or rural areas (*46*).

Third, even where physicians are present their acceptance of Medicaid patients is low. Among primary care physicians, 22 percent have no Medicaid patients and 63 percent of Medicaid patients comprise fewer than 30 percent of their caseload. That portion of physician nonparticipation attributed to low reimbursement rates may be amenable to changes in such rates. However, in a 1975 survey 40 percent of nonparticipating physicians cited "opposition to Government in medicine" as a reason; 25 percent cited "dislike for the kinds of patients enrolled" (*47*).

Thus, organized primary care centers that recruit physicians interested in serving shortage areas provide a supportive setting and serve all persons

regardless of income or social and cultural factors. These centers are an essential element of ensuring access for the underserved.

Assurance That Startup Costs and Health-Related Services Are Paid For in Primary Care Centers. Grant funds are needed for startup costs and to ensure that health-related but nonmedically specific services are paid for because changes in reimbursement may be slow, and even with comprehensive insurance benefits, some of these services (especially support services) are inappropriate for a reimbursement system that feeds into the private as well as the public sector, with insufficient opportunity for control.

Sensitivity to Varying Financial Needs of Communities. In the absence of a universal national health insurance plan, communities will vary widely in their residents' ability to pay for health services. Because of their emphasis on poor underserved areas, existing Federal primary care centers, hospital outpatient departments, and health department clinics serve large numbers of persons with no ability to pay for services. Thus, grant funds are needed to subsidize the poor and near poor who currently lack insurance coverage.

Increasing Sources of Nondiscretionary Funding. Although funding for Federal primary care centers has grown significantly in the last 4 years, the proportion of costs covered by reimbursement or patient payments has also increased, from 17 to 38 percent, illustrating that insurance is an important source of revenue. Moreover, the discretionary nature of grants means that expansion to meet the needs of the underserved, or even maintenance of current services, may not be possible if budgets are cut. Although some professionals have suggested that grant funding is easier to target and more accountable than insurance, an option that does not also include reimbursement revenues is not practical.

Conclusions

The previous analysis indicates that options combining insurance and grant sources are most desirable. Thus, grant funding should continue. When improvements are made in insurance coverage, they should include not only expansion of eligibility and benefits, but also effective methods of paying primary care centers such as an all inclusive visit rate or some form of prepaid care (ambulatory or all services), depending on the center's size, desires, and financial capabilities.

The amount of growth in primary care capacity will depend on the interaction between grant and insurance sources. Table 1 shows the impact of various combinations of reimbursement strategies and discretionary funding (primary care grants plus National Health Service Corps) on the capacity of health centers.

The first reimbursement strategy assumes that the proportion of center costs covered by reimbursement and patient payments will increase from the current level of 38 to 45 percent, because of passage of the Carter

TABLE 1. Impact of Three Reimbursement Strategies and Various Levels of Discretionary Grant Funding on Primary Care Center Capacity

	To Serve 6 Million Persons	To Serve 10 Million Persons	To Serve 15 Million Persons
Reimbursement Strategy #1: Passage of CHAP; reimbursement covers 45% of program costs			
		(1981 dollars in millions)	
Discretionary Funding	$400	$660	$990
Reimbursement	320	540	810
Total Cost	720	1200	1800
Reimbursement Strategy #2: Substantial improvement in insurance for the poor; reimbursement covers 60% of program costs			
Discretionary Funding	$290	$480	$720
Reimbursement	430	720	1080
Total Cost	720	1200	1800
Reimbursement Strategy #3: Universal health insurance; reimbursement covers 75% of program costs			
Discretionary Funding	$180	$300	$450
Reimbursement	540	900	1350
Total Cost	720	1200	1800

NOTE: All estimates assume an average annual cost of $120 per person, 1981 dollars

Administration's Child Health Assurance Program, which expands Medicaid eligibility and benefits for children and pregnant women.

The second reimbursement strategy assumes that the proportion of center costs covered by reimbursement and patient payments will rise to 60 percent because of the passage of the Child Health Assurance Program and other significant improvements in insurance for poor persons.[11]

[11]Under the administration's National Health Plan, about 75 percent of health center costs would be covered for about 70 percent of the people served.

The third reimbursement strategy assumes a comprehensive national health insurance plan that covers all health center users. Approximately 75 percent of costs would be covered by reimbursement; the other 25 percent, attributable to startup costs and health-related environmental and support services not appropriate for reimbursement, would still be dependent on grants.

Under the first reimbursement strategy the amount of grant funding needed to serve the same number of persons is more than double that called for by using the third strategy (comprehensive national health insurance).

Administrative Arrangements

Options

Assuming that Federal investment in primary care centers will continue, several administrative arrangements could be pursued:

- Continue direct project grants with a significant Federal monitoring role
- Use State governments as funding channels and program monitors in all cases
- Experiment with State and local government coordination of funding and program monitoring

Criteria for Decision

Criteria against which the options are evaluated are accountability, focusing on the neediest, sensitivity to underserved populations, compatibility with regional planning, and coordination with other services.

Accountability, Targeting, and Sensitivity. The direct relationship possible with a project grant nearly always enhances accountability and targeting. The history of maternity and infant care and children and youth projects, which were turned over to the States in 1974, suggests less accountability after that date partly because Federal involvement with monitoring and management dropped off sharply when responsibility could be passed to the States (*48, 49*). Community health centers that have always been funded by project grants exhibit a greater degree of focus on the poor and near poor and minorities than other DHHS programs. In addition, many of the communities served by these programs had not received sufficient attention from State and local governments prior to establishment of Federal project grant programs; some such communities fear they would fare badly if all funds were channeled through State or local governments today. However, accountability, targeting, and sensitivity to underserved populations could be maintained in demonstration projects with selected State and local governments, assuming that some degree of community involvement is required.

Compatibility With State and Local Planning. Federal project grants have been criticized for lack of attention to overall planning and some duplication in placement of centers. In addition, some have suggested that

State health departments, maternal and child health agencies, health systems agencies, and local health departments play an increased role in identifying gaps in access and planning for expansion of services. If this situation occurs, Federal funding for primary care should be compatible with these expanded roles.[12] State or local government management of all primary care funds could provide the greatest opportunity for coordination. However, because State and local governments vary widely in their capacity to manage a total system, movement now to universal channeling of all funds to States may be less desirable. Retention of project grants in all or some cases is not incompatible with good planning, especially if the State or local agency perceives its role not only as a direct provider, but also as identifying gaps and helping communities apply for Federal primary care funding.

Coordination With Other Services. Federal project grants have also been criticized for their categorical nature, lack of coordination with special purpose programs (e.g., hypertension, family planning, and mental health) and difficulty in establishing links to hospitals. However, no guarantee exists that all State and local governments would integrate services if they were given authority over primary care and other program funding. For example, most States have not moved to integrate the services funded through 314(d) of the Public Health Services Act, which originally consolidated several discrete public health programs. Moreover, many categorical programs serve a broader population base than primary care programs and the special emphasis they provide may be useful.

Conclusions

The original reasons for circumventing State and local administration of primary care funds, including insensitivity, lack of accountability, and poor targeting are still valid in some areas and no longer valid in others. Some State and local governments have led in creating networks and integrating services. Thus, it may be appropriate to open the door to administration of Federal primary care funds by certain State or local governments on submission of a detailed plan. Actual funding of health department delivery models previously mentioned would mean a significantly expanded role for both levels of government, while maintaining a balance of accountability and coordination through a basic project grant approach.

HOW CAN WE ENSURE PROVISION OF HEALTH-RELATED PREVENTIVE, PSYCHOSOCIAL, AND SUPPORT SERVICES TO CHILDREN AND PREGNANT WOMEN?

The health-related preventive, psychosocial, and support services previously listed in this paper can be critical to children's development

[12]This increase could be accomplished by careful coordination of any of the Federal funding options under discussion.

and overall well-being and to women's physical and psychological adjustment during and after pregnancy. The following are some of the most serious problems that might be amenable to these health-related services:

- Child abuse and neglect continue to occur with alarming frequency (714,000 cases in 1978 and 2,000 deaths in 1977 estimated by the National Center for Child Abuse and Neglect).
- Among certain populations (e.g., Navajo Indians) environmental hazards are the leading cause of death (*50*).
- About 10 percent of all adolescent girls become pregnant each year, significantly increasing the likelihood of maternal–infant death and low-birth-weight babies.
- It is estimated that 75 percent of mental retardation can be attributed to adverse environmental conditions during early childhood.
- As many as 90 percent of low-income children aged 1–5 are receiving less than the recommended amount of iron and roughly 50 percent manifest deficiencies of vitamin C (*51*).

The efficacy of health-related preventive, psychosocial, and support services in relation to health outcomes has not yet been completely documented. However, evidence suggests that these services, when well linked to ongoing primary care, may enhance effectiveness and in some cases substitute for more traditional services.

Prevention Services. Evaluations of well-child care programs for children under 2 years of age showed that although a typical pediatric physical evaluation had little impact on mortality and morbidity, programs focusing on the total needs of the child (including parent education and home-based interventions) were more effective methods of ensuring optimal child development (*52*). In addition, research has suggested that family planning programs, by reducing adolescent pregnancies through counseling and prompt followup of contraceptive use are effective preventive interventions particularly because this population of women is at high risk for neonatal morbidity, mortality, and pregnancy complications (*53*).

Psychosocial Services. Evidence is beginning to demonstrate that increased use of psychosocial services in a comprehensive setting may reduce the use of medical services (*54*). Moreover, research has suggested that very early home visits by maternal-child health workers (beginning during pregnancy) may be the most effective method of improving mother-child interactions (*55*). Finally, social support may be particularly important in preventing child abuse and neglect (*56, 57*).

Support Services. Social support services may play a critical role in protecting an individual's health (*58*). In addition, programs to counteract certain environmental hazards through organized health settings are effective in reducing morbidity and mortality (*59, 60*). Moreover, studies of WIC nutrition programs found them effective in reducing the fetal death rate in high-risk populations (*61*).

What Are the Barriers to Providing Health-Related Services?

Unfortunately, traditional primary care settings have not generally provided health-related preventive, psychosocial, and support services for children and pregnant women in adequate quantity or quality.

Less than 5 percent of the high-risk children in poor and urban areas and less than 40 percent of the children in more affluent areas are receiving well-child care services consistent with the American Academy of Pediatrics recommendations (*62*).

Studies have shown that between 10 and 20 percent of individuals in the community do not use traditional health services because they may be culturally or geographically isolated, more concerned with other priorities (e.g., housing), or may find services inaccessible or irrelevant for their needs (*63*).

Up to 60 percent of all encounters for mental health problems occur in the general medical care system where physicians and other practitioners often are not trained to deal with these problems. And even when the nonmental health practitioners recognize emotional and mental disorders, inappropriate responses to these problems occur frequently (*64*).

Barriers to All Health-Related Services

Traditional health providers may be reluctant to offer services that represent a departure from their training and orientation and may distrust health-related services (*65*). The primary care physician may also feel that he or she can handle health-related problems without other support (*66*) or may not be receptive to the use of mid-level professionals who are trained to provide these services. Physicians may also be reluctant to spend time on health-related services not reimbursed by public or private insurance.

Federal and State grant support for many health-related services is provided on a narrow categorical basis (with the exception of the primary care centers discussed earlier). Separate providers of mental health or preventive services may be reluctant to coordinate fully or to relinquish any control to primary care providers.

Barriers to Specific Services

Preventive Services. Individual primary care physicians, from whom most families get their care, are not organized or trained to provide preventive services such as counseling and education that should accompany screening and lab tests. Lack of payment incentives contributes to this problem. A notable exception is prenatal care, where counseling is provided by many private physicians for an all-inclusive fee. Finally, States and communities are resistant to family-planning and sex education courses in schools (*67*).

Disease treatment has historically received a higher priority than prevention by providers and potential users. High-risk groups in particular perceive preventive services either as unnecessary or as a low priority (*68*).

Psychosocial Services. Physicians are reluctant to label patients as needing mental health services, and mental health services are handicapped by stigmas, particularly by racial and ethnic minorities who may be suspicious of them.

On the other hand, psychosocial service programs are less inclined to focus on families and do not stress prevention or health promotion programs. Instead, their focus is remedial treatment for the individual (*69*). Providers of psychosocial services are also often unable to perceive the relationship between the disease process and psychosocial factors and are unable to coordinate with primary care providers (*66*). For example, community mental health centers have not been viable, consistent referral resources for patients in traditional health settings.

Support Services. Little financial support exists for transportation and other important auxiliary programs that facilitate provision of health services (*70*). Moreover, health-related social service professionals for followup and case management are not incorporated into most settings where underserved children receive care (*71*).

What Are Some of the Ways in Which Health-Related Services Are Now Provided?

To overcome these barriers in providing health-related services for families and pregnant women, many variables including the population served (underserved, general population), the service area (rural, urban), and nature of the service must be taken into consideration. Perhaps the most important question is whether a particular set of health-related services is incorporated into a primary care setting or provided separately, and, if provided separately, what links to an ongoing source of primary care exist.

Preventive Services

Health-related preventive services—counseling and education—are not traditionally provided in most primary care settings, especially in solo or small group practices. However, some private practitioners offer certain preventive services (e.g., nutrition education) as part of pre- and postnatal care for infants and pregnant women. Organized settings, on the other hand, (HMO's and comprehensive primary care centers) are likely to provide many more preventive services on a routine basis.

Several other programs also emphasize health-related preventive services either separately or in conjunction with certain elements of primary care. These services include school health programs and family planning projects.

Three programs that provide health-related preventive services follow.

HMO of Puget Sound[13]

The Puget Sound (Washington) HMO has a total of 300,000 enrollees. By using epidemiologic data about its members, it has recently established a special population-based services program that includes preventive and well-child care as well as studies of what predisposes children to certain illnesses and what are the best interventions to prevent or treat these problems.

Program Operation and Personnel. One major innovative component of the program is education and outreach that attempts to reach those at high risk for problems such as child abuse or a second adolescent pregnancy. During the prenatal period, the HMO holds health education programs for parents that include information on what to expect during pregnancy and a tour of the nursery and other facilities. Nurses also make home health visits, providing assistance and guidance to parents on child management, growth, and development.

A second major innovation is scheduled visits during the postnatal period. A third innovation is screening of infants who may be at high risk for specific conditions according to epidemiologic data. Program staff includes pediatricians, nurse practitioners, and other professionals.

Program Statistics. The program attributes financial savings of $100,000 per year to the scheduled visits and an increase in the number of children receiving services relevant for them.

Cambridge School-Based Primary Care Program[14]

The Cambridge (Massachusetts) school-based primary care program serves about 6,000 of the 16,000 children in the area (about 67 percent of whom are from low-income families) and operates under the auspices of the Department of Health, Hospitals, and Welfare, City of Cambridge. The city is also the major source of funds for the program.

The program provides:

—preschool screening, evaluations, and assessments to identify learning and emotional difficulties
—physicals and laboratory exams
—immunizations and treatment of minor illnesses and injuries at the schools
—referral to health centers and pediatricians from Cambridge City Hospital for other primary care and specialty services
—community outreach, including followup home visits by nurses for emergency room and hospital cases, consultation to nursery school staffs, and outreach for problem cases

[13]Description from personal communication with Robert Thompson, M.D., of the Puget Sound program

[14]Description from personal communication with Philip Porter, M.D., Director (72).

Program Operation and Personnel. The primary purpose of the school-based program is to identify children having physical and learning difficulties in the classroom as early as possible. Nurses or nurse practitioners visit each school at least one-half day a week, providing well-child care, including screening and eye and ear examinations. They also manage care for pediatric illness and injuries identified in the school (e.g., mild trauma and ear, nose, and throat ailments), provide counseling about child rearing, and refer to health facilities where appropriate. Schools associated with neighborhood health centers use nurse practitioners who are employees of the health center and use health center facilities for laboratory tests and referral. Nonhealth center affiliated schools use traditional school nurses. Both centers are supported by pediatricians from Cambridge City Hospital.

Program Statistics. Immunizations for measles have increased from 55 percent in 1965 to 99 percent in 1975 for the children in the program; 98 percent of these children received their polio and diphtheria series. The program results also suggest that the neighborhood health center-school linkage may have also reduced inappropriate utilization of the pediatric emergency ward at Cambridge Hospital.

St. Paul-Ramsey Adolescent Health Clinic[15]

The St. Paul-Ramsey (Minneapolis, Minnesota) Clinic is a high-school-based pregnancy prevention program operated as a satellite of a maternity and infant care (M&I) project. Services offered to all senior high school students in two schools include VD testing and treatment, pregnancy testing, pap smears, contraceptive information and counseling, and basic prenatal and postnatal care.

Program Operation and Personnel. Each school has its own team providing a wide range of health-related services, with health service followup provided by the St. Paul-Ramsey project. A family planning nurse practitioner is the team leader, responsible for health histories, simple laboratory tests, educational sessions, and advising students on contraception methods. A social worker sees all family planning patients prior to the initial exam. An obstetrician–gynecologist and pediatrician provide health exams for pre- and postnatal care. A nutritionist provides screening and education for all new family planning patients. A dental hygienist provides oral hygiene screening. Finally, a day care director is in charge of the day care center located within the school for children of registered students.

Program Statistics. By the end of the third year of program operation (1976), 50 percent of both student bodies had visited the clinic at least once and 92 percent of pregnant students had obtained prenatal services. The school dropout rate after delivery declined from 45 percent in 1973 to

[15]Description from *Family Planning Perspectives* (53).

10 percent in 1976 and the fertility rate declined from 60 per 1,000 to 46 per 1,000.

Psychosocial Services

It has been estimated that over 60 percent of all mental health encounters occur in the general medical system, where, all too often training and referral linkages for such services are inadequate. The HMO's or comprehensive primary care centers are generally better prepared to provide mental health services because of the multidisciplinary nature of their staff, but they still may lack training and referral linkages. Moreover, in 1975, such settings accounted for only 2 percent of all clients with mental health problems seen in the health care sector (*73*).

Conversely, most professionally trained mental health professionals see patients in mental health settings with links to specialty care but not to primary health care. These professionals include private psychiatrists and community mental health centers. Some programs (such as Head Start) that concentrate on developmental services and include referral and links to primary health care do exist.

Three programs that provide psychosocial services with some degree of integration with health care follow.

Community Health Care Plan of Greater New Haven[16]

The Community Health Care Plan of Greater New Haven (Connecticut) is a federally qualified HMO serving a population of 25,000. It operates a health–mental health program funded by the National Institute of Mental Health, headed by a pediatrician, and focuses on children and parents.

Program Operation and Personnel. Primary care services to children and families are delivered by teams that involve collaboration among physicians, physicians' assistants or nurse practitioners, medical assistants and nonmedical mental health clinicians. A pediatrician who encounters a child with an emotional problem may deal with it directly, or present the problem to a consulting child psychiatrist or to a mental health professional. The pediatric social worker becomes clinically involved in one-third of the cases, frequently conducting interviews or therapy with both children and their parents. An additional Community Health Care Plan social worker from the Community Services and Health Education unit may assist families with budgeting, finances, and housing, and may intervene in child abuse and neglect cases.

Program Statistics. In 1974 the health-mental health program identified 366 of a total of 4,094 patients under 19 as having emotional problems. Of these, 294 were seen only by a pediatrician (instead of a psychiatrist), but received coordinated physical, mental health, and social support services. The remainder received specialty mental health services.

[16]Description from Coleman (*74*).

The Bunker Hill Health Center–Mental Health Unit[17]

The Bunker Hill Health Center (Charleston, Massachusetts), provides comprehensive, family-centered health care services to a population of 17,000. The program is a satellite of Massachusetts General Hospital and offers medical, pediatric, mental health, social, dental, nutritional, and other services. The program receives Federal primary care funding, with the National Institute of Mental Health contributing to the mental health component in a prototype "joint endeavor" linkage.

Program Operation and Personnel. Although the Bunker Hill Center has a sizable mental health staff, it has linked its integrated program with the local community mental health center, which provides additional staff for specialized mental health services.

Active interaction occurs between the health and mental health staff within the Bunker Hill Center and at the community mental health center. Multidisciplinary health care teams review family cases and make service and treatment referral recommendations.

Program Statistics. Almost 16 percent of the 9,233 patients seen at the Bunker Hill Center were identified as having mental health problems during 1975. Of these patients, a significant number of children and parents received mental health services (17 percent of boys between ages 5 and 14, and 23 percent of women between 25 and 44 were seen in the Mental Health Services unit). The average cost of providing mental health services was $345, well below the Massachusetts outpatient mental health insurance requirement.[18]

The Houston Parent-Child Development Center[19]

The primary goal of the Houston Parent-Child Development Center (Texas) is to assist low-income (predominantly Mexican-American) families and improve the intellectual, social, and physical development of their young children. The 2-year program focuses on developing child-rearing skills. Funding is provided by the Federal Office of Child Development and private foundations.

Program Operation and Personnel. At 1 year of age the child is enrolled in an in-home program that includes home visits by a specially trained teacher who attempts to promote the child's sensory, perceptual, language, motor and social development through encouraging and teaching mother–child interaction. The family also participates with other parents in four family workshops designed to improve communication and decisionmaking.

At 2 years of age the child and its mother participate in an in-center program to develop home management skills for using personal and

[17]Description from the Institute of Medicine (*75*).

[18]The State requires that private insurers must reimburse psychiatrists, primary care physicians, and licensed psychologists for mental health services up to $500 per patient annually.

[19]Description from Johnson (*76*).

community resources more effectively and to sensitize the mother to important aspects of her child's development. Because the Parent-Child Development Center population includes a majority of Mexican-American families, the integration of the family's culture and language are encouraged. The families who participate in the program are also reached by community workers who assist them in using medical, nutritional, educational, and welfare services.

A full-time nurse at the center provides preventive and some basic primary care services. Other health services are provided through contractual arrangements with local programs such as the San Jose Health Clinic. Children receive health assessments at 1 and 2 years of age and other care as needed.

Program Statistics. Preliminary evaluation has shown some improvement in mental development when compared with a control group and has demonstrated improvement in mother–child interaction, particularly regarding the mother's display of affection for the child and in increased verbalization.

Support Services

Support services are generally those that facilitate health services for persons with access problems, or seek to correct environmental and other problems that contribute to lower health status. Thus, such services are not often found in mainstream primary care, especially in solo or small group practice. They are most often found in comprehensive primary care programs for the underserved.

Medicaid's Early and Periodic Screening, Diagnosis and Treatment (EPSDT) program is largely a method of financing a set of required services that can be delivered through a number of models and settings. However, a particular service requirement of EPSDT is outreach and case management, which can be performed separately or integrated with either screening or ongoing primary care. Thus, EPSDT (and some other public health screening efforts) are an additional source of support services. Finally, local health departments may offer special water and sewage treatment programs, but often these programs are isolated efforts uncoordinated with other health programs.

Two programs that provide health-related support services follow.

Beaufort-Jasper Comprehensive Health Services[20]

The Beaufort-Jasper (South Carolina) program is a federally funded primary care center serving a largely rural area in the coastal area of the State. It provides comprehensive primary care and community development services to 25,000 predominantly poor and near-poor residents. Its major objectives include improving the health and well-being of its population, raising the economic level of the population and providing adequate housing, water, and sanitation.

[20]Description from personal communication with Thomas Barnwell, Director.

Support services are particularly critical because of the high proportion of substandard housing (as of 1976, 16 percent of the housing units in Beaufort and 40 percent in Jasper lacked plumbing facilities), high-infant mortality, and the fact that some residents are island dwellers or live in isolated areas without adequate transportation.

Program Operation and Personnel. The Beaufort-Jasper program is organized into major departments responsible for specific health and medical services: an executive department for administration, operation, evaluation, and other internal activities; a community services division encompassing environmental health, transportation, economic development, and housing; a health care services department providing primary care, social, nutrition, mental health, and other related services; and a special projects department for water, community development, youth and manpower programs (e.g., garbage disposal, sewage, and mosquito control).

Program sites include a large central facility and four satellite clinics, employing about 250 full-time permanent staff organized into teams.

The center also coordinates its programs with other health care settings in the area, including referrals to specialists and contracting with hospitals in the area for inpatient care (center physicians follow their hospital patients), and arrangements with the local health department for prenatal care and home visits to discharged hospital patients.

Program Statistics. The Beaufort-Jasper program averages 50,000–60,000 medical encounters and 6,600 in-hospital encounters annually. The program has reduced the number of inpatient hospital days for the population served by almost 50 percent (from 2,000 in 1971 to 1,091 in 1975). One very tangible result can be seen in support services; the center has installed or updated 100 water systems for families who previously had poor water systems supplies.

Michigan Screening and Referral Program[21]

The screening and referral program—part of Michigan's EPSDT effort—incorporates an innovative referral system that accompanies the screening process for the State's 440,000 Medicaid eligible children. However, this program, like most other State EPSDT efforts, operates predominantly on a nonintegrated model, depending on one set of providers for outreach and screening and another (often the private sector) for the followup care.

Program Operation and Personnel. Michigan's Department of Public Health, through agreements with the Department of Social Services, has developed contracts with all local health departments to provide screening, training, supervision, information on findings to parents, and referrals. The Department of Social Services determines eligibility and performs outreach, transportation, and other ancillary services.

[21] Description from Kirk (77).

The Michigan program includes a State level EPSDT staff, consisting of a public health nurse, an audiologist, a coordinator, an administrative analyst, and a physician, who provides training and support to local teams. Referrals by the teams for followup care are mandatory if the child fails a screening test and is not under care for the problem. A computer system also returns screening summary cards to local screening teams if they have failed to make appropriate referrals.

Program Statistics. Local teams make about 85 percent of the referrals for followup, with families arranging the remaining 15 percent directly. Most frequent referrals include dental problems (27 percent), immunizations (26 percent), and physical inspection (20 percent). However, even with the training and special effort, as many as 60 percent in some areas do not keep appointments. This figure is significantly higher than in several other States.

How Can We Ensure Provision of Health-Related Preventive, Psychosocial, and Support Services?

Issues and Options

Issues relevant to ensuring provision of health-related preventive, psychosocial, and support services to all children and pregnant women include:

- Which programs suggest the most promise and what would be the relative emphasis each type of program receives?
- What is the most appropriate source of financing for each group of services and for providers within each group?
- What administrative arrangements are most likely to translate Federal funding into effective, efficient health-related services?

Effective Programs for Providing Health-Related Services

Options

A variety of programs providing health-related services has been described, each attempting some degree of integration with primary health care services. Although we are far from selecting specific models, some conclusions regarding attributes that contribute to effectiveness can be drawn from a comparative evaluation.

Criteria For Evaluation

For each group of programs, criteria include ensuring access, degree of integration with primary care, involvement and satisfaction of consumers, and effectiveness and efficiency.

Preventive Services

Access. Only two considerations regarding access to health-related preventive services exist. The first consideration, because users are often

reluctant to seek these services in isolation, is whether they are provided in conjunction with some other service deemed more essential or in a setting where the population can be easily reached. Integration in an organized setting or solo practice is highly desirable in this regard, as is the provision of preventive services in a school setting.

The second consideration is whether the health-related preventive services are provided to the highest risk groups. Some programs are located in poor or underserved areas and ensure access by establishing outreach efforts within the communities. These efforts include primary care centers and many school-based health programs in low-income areas. For example, the Cambridge project serves a predominantly lower income population and attempts to meet needs of high-risk individuals by concentrating outreach efforts in densely populated areas. In addition, services are available one evening a week for working parents. Special service programs such as family planning can also focus on high-risk individuals through their location, such as the high-school-based St. Paul-Ramsey adolescent pregnancy program.

For providers serving more affluent populations, focusing on high-risk persons is desirable for some services, although other services should be provided to all children. The Puget Sound HMO achieved this through an epidemiologic approach and home visits. The HMO data systems are often sophisticated enough to use demographic and health status information to facilitate the provision of preventive services for those most at risk (*75*).

Integration With or Links to Primary Care. The linkage of preventive services to primary care is important because it increases utilization of the preventive services, and increases the effectiveness of health services (*78*).

Prepaid HMO or comprehensive primary care settings are likely to be effective in combining health-related preventive services with primary care because such services are related to the cost effectiveness and the philosophy of the program. Moreover, such programs are more likely to use mid-level professionals, especially health educators, in cooperation with curative practitioners, and the family-oriented administrative structure helps ensure continuity.

The incorporation of health-related preventive services into solo or small group practice is more problematic. Areas of solo practice exist where this incorporation works fairly well (e.g., prenatal care by obstetricians that includes counseling, or the use of nurses or nurse practitioners in pediatricians' offices for parent education). However, the quantity and quality of these services in private practice is inadequate.

Breslow and Somers (*31*) have proposed formal adherence to a "lifetime health monitoring" schedule of preventive health services and health-related counseling and education. However, problems of actually integrating health-related services into a medical practice—the devotion of sufficient time and the delegation of tasks to those trained in providing education and counseling—have not been addressed. One model that could be tried on a demonstration basis is the British national health service program that pays for home visits and primary care nursing teams in general medical practices (*79*). Public health nursing staff work directly

with individual general practitioners in providing health-related preventive services.

School-based prevention programs can also be successful if, like the Cambridge model, they provide direct coordination with primary care providers and establish consultative relationships with physicians. There too, nurse practitioners can play critical roles in providing services and outreach. However, it is important to remember that not all school programs employ nurses or nurse practitioners trained in providing health education in conjunction with primary care, and not all have the links to health centers and hospitals found in Cambridge.

Similarly, linkages for special purpose prevention programs such as family planning vary widely. For example, the Government Accounting Office (*67*) found that family planning services are often poorly coordinated with primary care. Two characteristics of the St. Paul-Ramsey program may make it especially attractive: use of the school site for outreach, and linkages to an array of health care services. However, with services for adolescents it is sometimes necessary to choose between effective outreach (i.e., a school or other site where teenagers will come freely) and primary care integration, and if so, the outreach aspect may be more important.

Consumer Participation and Satisfaction. Where health-related preventive services are integrated with organized primary care programs, a mechanism such as a community governing or advisory board usually exists for consumer participation. Consumer participation should be studied more closely, specifically in the health education and maintenance aspects of the program. The lack of consumer involvement in solo and small group practice may be a major problem and should also be the subject of services research and demonstrations.

Consumer participation in school-based programs can be important to success. For example, studies of a program in Hartford, Connecticut (*80*) showed that students felt a greater sense of independence and control regarding their choice to seek health care. Such involvement depends heavily on the focus of program control and the attitude of administrators toward user participation. Health providers may be more receptive to consumer involvement than school officials, especially if they are linked to community-based primary care programs, as in the Cambridge project.

Finally, consumer involvement in special purpose programs can mean a vocal constituency for a particular service such as family planning, but it is important to emphasize overall community needs as well. The St. Paul-Ramsey project did this by forming a community advisory committee. Changes in the original location of the program showed sensitivity to the clients' needs and caused a significant increase in the number of people using the services, as well as a more positive attitude among students, parents, and faculty.

Effectiveness. Nearly all of the preventive service models discussed as well as the evaluations of similar programs show positive results of utilization. In the Puget Sound HMO prevention program, the number of immunizations and preventive services increased when compared with the period before the program was instituted (*81*).

Similarly, Federal and some health department primary care programs increase immunizations and other preventive health services dramatically. Some preventive services require further research before conclusions can be drawn regarding their impact on health status; however, definite positive outcomes can be shown from others. For example, the Cambridge program showed positive results in emergency room visits, which declined 44 percent. Results from the St. Paul-Ramsey adolescent pregnancy program showed a dramatic decrease in the number of adolescent pregnancies (from 79 out of 1,000 to 35 out of 1,000 in 1 year), and increased improvement in the use of contraceptives has been found in other studies (*82*).

Program Cost and Efficiency. Evidence on costs is spotty and comparisons of costs with and without health-related preventive services are rare. However, some evidence suggests that preventive service models are cost effective. The Puget Sound HMO attributes financial savings of about $100,000 per year to the reduction of the need for other clinical care by providing preventive services. This finding is consistent with other research showing that HMO's reduce the need for curative services, thereby saving both money and staff time (*60*).

The Cambridge program notes that its costs per encounter ($7.47) and per year ($35.15) are competitive with private pediatric care for the area (*28, 72*). Although data on the St. Paul-Ramsey program and other school-based family planning efforts are inconclusive, the significant reduction in pregnancies suggests its cost effectiveness.

Psychosocial Services

Access. Comprehensive primary care programs emphasize outreach and provide accessible, family-oriented primary care to the populations they serve (*83*). Thus, joint endeavors to provide mental health services in these settings offer substantial promise. One study of the Bunker Hill Health Center (*84*) found that 75 percent of the children and adolescents in the community were active users of their center, with the majority of patients coming from low-income families. Comparisons of an HMO and independent plans for delivering mental health services to low-income enrollees found that twice as many enrollees in the HMO plan used psychosocial services (*85*). Both primary care centers and HMO's facilitate utilization of mental health services because consumers and communities perceive them as medical settings, lessening the stigma associated with mental illness (*30*).

Head Start programs also focus on nonstigmatized services to a target population and outreach. For example, the Houston program enhances accessibility through emphasizing cultural sensitivity and by conducting the programs in homes and neighborhood facilities, with little or no cost to the families.

Separate mental health programs may not offer these same advantages, even with a strong outreach component. Stigma may be a problem, and disadvantaged or minority populations may not relate well to what they perceive as services for mental illness.

Integration With or Links to Primary and Specialty Care. Settings that integrate health and mental health services facilitate coordination and early problem identification, allowing staff to deal with a wide range of childhood emotional conditions. Conversely, mental health settings see more serious acute or chronic problems (*74*).

Because of their comprehensiveness, the HMO and primary care programs make effective use of multidisciplinary teams for psychosocial services. Such teams may include physicians, psychologists, nurses, and social workers, and provide a system for planning and coordinating care. Because both primary care programs and HMO's already use nonmedical professionals, fewer problems may arise when attempting to introduce psychosocial services than in more traditional settings.

However, integration of mental health services into primary care programs requires the cooperation of medical providers. For example, pediatricians may be more likely to determine that the child will outgrow many problems that a traditional mental health professional may treat (*74*).

Programs such as Head Start only partially integrate health and psychosocial services and concentrate on developmental services rather than a full range of mental health care. Links to primary care are usually stronger than with a traditional mental health program because the goal is to handle both the physical and mental factors that enhance a child's development. For example, the Houston Head Start program emphasizes social, emotional, and cognitive development and establishes linkages with primary care professionals and facilities. However, the impact and methods of integrating health care with these psychosocial services have not been well documented (*86*).

Another aspect of linkages that is important for psychosocial services in particular is the relationship with specialty mental health services for referral and followup. The Bunker Hill Health Center's affiliation with a community mental health center provides staff and guidance for secondary and tertiary services. This "joint endeavor" model uses staff hired by the primary care center (often social workers, nurses, and indigenous workers) to provide most services and community mental health center-hired mental health personnel (usually doctoral level professionals) to provide backup and more specialized services.

Conversely, the Greater New Haven HMO refers very few of its children to external mental health resources (only 8 child referrals in 1974). This lack may be due to the presence of more mental health professionals on the HMO's own staff, although it also suggests that referrals occur only as a last resort and that the HMO may not make use of exisiting programs that could provide supplemental mental health services.

Little information exists on linkages between the Houston Head Start program and specialty sectors, although community workers and nurses assist parents in locating appropriate service settings.

On the other hand, separate mental health programs, particularly community mental health centers, excel in links to secondary and tertiary mental health care, but do not always provide key entry level services.

Consumer Participation and Satisfaction. Primary care programs such as the Bunker Hill Health Center receive guidance from a consumer-majority governing board that attempts to ensure it meets the needs of the population in its catchment area (see earlier discussion of the Federal primary care model).

Head Start programs are also largely community based, with parent advisory boards, and studies have found that they increase community involvement (*87*) and parental satisfaction (*88*). For example, the role played by the Houston Head Start program's Parent Advisory Council in program guidance works to ensure cultural and individual sensitivity, as well as accessibility for the service population. The HMO programs also attempt to involve consumers, but their efforts may be less consistent.

The success of consumer participation in separate mental health programs has been mixed. These programs often have a vocal community constituency; however, advisory boards do not always represent those most in need of services.

Effectiveness. Most of the models discussed showed evidence of effectiveness, although specific comparisons of integrated versus separate mental health programs have not been performed. In particular, research has suggested that introducing a mental health program into a general health care setting may reduce need for utilization of medical services as well as reaching people needing assistance for psychosocial problems (*54*).

In both the HMO and primary care centers previously discussed, a significant number of children used the mental health component. Although no specific data exist on the clinical effectiveness of these psychosocial treatment programs, some evidence suggests that combining health and mental health services significantly reduces referral appointment failures, increases feedback on referral results, increases informal contacts, and decreases stereotyping (*89*). In addition, general health programs, especially those that are community based, may be more successful with the poor and with alcohol and drug abusers than professionals in mental health settings who are comfortable with middle class clients and more verbal therapies.

Head Start programs have demonstrated improvement in children's social development and positive changes in parental attitudes and self-confidence. However, little change in social adjustment, self-esteem, and personal adjustment has been documented.

Health components of Head Start demonstrated increases in medical exams, appropriate treatment, and better health in general (*90*). A Government Accounting Office report (*51*) also cited significant improvement in socioenvironmental development of mothers and cognitive language development of children.

Reasonable Cost and Efficiency. The Bunker Hill Health Center reports a reasonable level of cost considering that the average per capital expenditure for mental health, $345, is below the $500 Massachusetts outpatient mental health insurance limit.

However, an insignificant amount of generalizable data are available on the costs of mental health services in HMO's, primary care centers, and Head Start programs. More rigorous research is needed on the efficiency and cost effectiveness of these programs and on whether reductions in general health service use are attributable to separate mental health programs.

Support Services

Access. Because one goal of support services is to broaden access, ability to reach and relate well to high-risk groups is especially important. The record of Federal primary care centers, including the Beaufort-Jasper Health Center has been well documented in this regard.

However, EPSDT has not done well in reaching the target population. Only 30 percent of eligible children have current screenings and 70 percent of those needing followup care obtain it. This situation is attributable to a number of factors, but particularly to a lack of intensive outreach, failure to use community-based groups, and absence of adequate links to ongoing health care. Similarly, separate support services provided by health departments or social agencies are not always combined with vigorous outreach and sensitivity to community problems, although some notable exceptions exist.

Integration With Links to Primary Care. Major benefits can result from integration of support services, particularly for the poor and underserved population whose need for such services is greater than that of other socioeconomic groups. For example, a General Accounting Office report (*67*) recommended that support services such as the WIC nutrition supplement program would be better coordinated with Federal primary care centers. However, some of these services have been within the traditional domain of health departments (whether or not the health department also provides primary care) and social agencies. Thus, comprehensive health care programs that provide environmental, transportation, and other related services must decide to what extent they alone should be operationally responsible for such activities, the degree to which they can coordinate with other sources, and how to avoid duplication.

The Beaufort-Jasper Health Center has developed an extensive set of support services that the staff feel are essential to providing effective comprehensive health care. The program's ability to provide transportation for health services and housing and environmental assistance has been particularly important in this predominantly poor, rural area because the population has virtually no other organizations that coordinate support services for them. The Beaufort-Jasper Health Center's medical staff advise environmental health personnel regarding which patients are most in need of home improvements (priority status criteria include families with many children or the elderly). Social services staff serve as patient advocates and provide assistance in locating and using appropriate health-related programs (e.g., WIC, food stamps). Family health workers are used to provide transportation and home visits.

The Beaufort-Jasper and other primary care health centers have been able to integrate their own support services successfully. However, because the original philosophy of programs such as the Beaufort-Jasper program was to include a wide range of support services, significant tensions may still exist when it coordinates with other agencies regarding precisely which services are needed, how they should be provided, and what attitudes are toward the target population.

When the major focus of coordination is not a primary care center but a partial provider such as an EPSDT program, additional problems occur. In particular, the effect of outreach and transportation may be lost because subsequent links to ongoing care are absent. Relationships between health and social agencies and other sectors of the health care establishment have not occurred in many EPSDT programs, resulting in inadequate followup for treatment or further testing (*91*). Other studies (*92*) have also reported that State EPSDT programs have had little positive effect on child health, that problems in assigning the task of outreach separately to States were found, and that the existence of a comprehensive health center facilitated early implementation of EPSDT programs. Although the Michigan EPSDT program was successful in involving relevant social and health department resources (including the cooperation of county health departments, social services, physicians, and other providers),it has continued to suffer from moderate to high "no-show" rates for screening, diagnosis, and referral (*77*). Greenberg (*93*) found that the Michigan public health nurses were not linking needy children to continuing systems of care. Part of the problem is that physicians are reluctant to participate in Medicaid. However, the same researchers also faulted the Michigan program for inadequate transfer of screening records to health care providers.

The Carter Administration attempted to handle these problems through the CHAP proposal, which would reimburse community groups, including comprehensive care providers for outreach, and establish advantageous rates and methods of paying for all ambulatory services delivered by a comprehensive care provider.

Consumer Participation and Satisfaction. As previously discussed, Federal primary care centers, including the Beaufort-Jasper Health Center, require consumer-governing boards. Although this form of community participation is generally very useful in integrating support services, some pitfalls exist. To the extent that programs expand to include environmental, transportation, housing, and other support services, divergent interests may encumber the policymaking processes (e.g., jobs for community residents versus staffing to meet health care needs).

Studies examining the EPSDT program, on the other hand, have found minimal parental participation as well as widespread misinformation (*94*). In addition, parents usually were not told that outreach, screening, and diagnostic procedures are only part of total child health care.

Support services provided separately by health and social agencies may face similar problems. Although health departments are representatives of a duly elected government, they may lack a community or user focus.

Effectiveness. The relationship of health improvements to support services in comprehensive primary care centers has been partially documented, that is, the primary care model in nearly all evaluations showing reduced infant mortality, lower hospitalization, and less preventable disease includes these support services.[22]

By definition, some support services such as outreach and transportation cannot improve health status unless they are well linked to actual health care. Others, such as food supplements or environmental intervention may well succeed in the absence of health services, although they may be more effective when links to health care are present.

Reasonable Cost and Efficiency. Unlike health or psychosocial services, very little has been done to establish reasonable cost parameters for support services. What does seem true is that economies of scale exist for these services and for small volume primary care providers it may be useful to consider a consortium arrangement for some support services or to tie into other agencies if the right linkages can be arranged. For example, multipurpose transportation networks serve health and other programs in some communities successfully. The Department of Agriculture and the Farmers Home Administration have published guidelines for establishing these programs for the disadvantaged in rural areas. Another example would be the provision of environmental intervention (e.g., water and sewage improvements) by arrangements between a local health department and a primary care center.

Conclusions

Delivery of health-related services requires further examination before the most beneficial program models can be specified. However, preliminary assessments seem to suggest the following.

- Regarding health-related preventive services:
  - —Major advantages to integration with an organized, comprehensive source of primary care are found.
  - —Demonstrations from which we could learn about the feasibility of incorporating these services in a solo or small group practice also are indicated.
  - —If preventive services are combined with some element of primary care (as in a school health program) and if the program also has good links to the other components of ongoing care, they can be provided effectively.
  - —Although separate preventive services can fragment care, tradeoffs come with accessibility. For example, an adolescent program that focuses on pregnancy prevention, in some cases in conjunction with other health services important to that age group, may be more successful than a comprehensive family-oriented program in attracting teenagers.

[22] See earlier references 38–40.

- Regarding psychosocial services:
  - —Major advantages to integration with an organized, comprehensive source of care such as a primary care center or an HMO also exist. These advantages include use of the nonstigmatized, community-based health sector as an entry point to the mental health system. However, links to specialty mental health care are also needed. In this regard, the health-mental health linkage grants in the recently passed Mental Health Systems Act should be supported and expanded.
  - —Very little is known about the psychosocial components of solo or small group physician practice. More research is needed in this area, although it is generally agreed that mental health training of physicians needs improvement.
  - —Development programs such as Head Start can also be extremely successful. However, the sometimes tenuous nature of the links to ongoing health care should be recognized, and greater collaboration between Head Start and primary care centers encouraged.
  - —Many entry level psychosocial services will continue to be provided in separate mental health settings, with or without referral from the health sector. Mental health programs should be encouraged to establish links with primary care providers in their areas.
- Regarding health-related support services needed primarily by high-risk, unserved, and underserved populations:
  - —Significant advantages also exist to integration with a comprehensive care program, especially because outreach, transportation, and case management are ineffective unless the cycle of care is completed.
  - —Where political arrangements or economies of scale require that a separate agency deliver support services, preference for funding should be given to those willing to work through or with primary care providers. Networks combining Federal primary care centers and health department support services may be especially promising.

Sources of Funding

Options

Financing health-related preventive, psychosocial and support services may occur through

- Fee-for-service reimbursement
- Reimbursement only to organized settings
- A grant for service or a set of services

The bulk of health-related preventive services in organized settings are paid for through a combination of reimbursement and grant services; that is, counseling and education may be built into the rate structure especially where directly associated with screening and treatment. However, extra grants often pay for special prevention programs. In solo or small group

physician practices, health-related preventive services are not formally reimbursed, but may be considered part of a visit for screening or treatment. Thus, no monetary incentive exists to encourage that time be spent on such services, or that a trained midlevel professional should provide them. Health-related preventive services provided by separate programs are heavily grant supported because these programs often do not have access to the health care reimbursement system.

Of the three health-related services, the psychosocial group is the only one considered a treatment form. Although insurance coverage is far from complete, it rivals coverage for basic primary care in some plans and programs. Psychiatric services and developmental screening are covered by Medicare (with limits); psychiatric services and developmental screening are covered by Medicaid (often with limits as well). Coverage of mental health services in organized settings (usually delivered by midlevel professionals) is less complete. Community mental health centers derive about 30 percent of their income from third-party payments and primary care centers may also be reimbursed for mental health services, but such coverage is spotty. Finally, HMO's may include mental health services in their rates.

Of the three groups, health-related support services are the least likely to be covered by any form of insurance. This lack of coverage is primarily because such services—outreach, transportation, food supplements, and environmental intervention—are on the outer edges of the spectrum of health-related activities in relation to personal health care.

Criteria for Evaluation

Criteria for selecting financing options are whether effective provision of the services is likely to result from the method of financing, whether the method minimizes fraud and abuse, whether it encourages integration, whether it is sensitive to varying needs of communities, or whether it maximizes sources of nondiscretionary funding.

Preventive Services

Effective Provision. Ensuring that relevant preventive services are provided for children and pregnant women depends on key initial action, that is, to develop a set of services and structuring a series of periodic interventions (e.g., Breslow and Somers "lifetime health monitoring package" (*31*) or the Puget Sound HMO program). Each funding strategy, however, will have its own effect on how well these preventive services are provided. General fee-for-service reimbursement would make preventive services available to the greatest number of people. However, it would also focus scarce resources on solo and small group practices, where physicians may not spend the necessary time on these important nonmedical activities unless their time is valued as highly for education and counseling as it is for diagnosis and treatment. If fees included education and counseling by midlevel professionals, but were channeled through fee-for-service physicians, the incentive to use those who are best trained to provide health-related preventive services would be still lacking.

Grants for specific preventive services and personnel ensure the greatest level of control regarding how the services are provided. These services are part of the grant funding for Federal primary care and special purpose programs. Grants could also be provided on an experimental basis to solo and small group practices, similar to the British model that places a nurse practitioner or public health nurse in a physician's office.

A middle course would be to limit insurance payment to organized settings such as HMO's or primary care centers. These settings have built-in incentives to keep people well and contain costs; most of them have peer review and use less expensive personnel; outreach can help ensure appropriate periodicity. However, a larger number of organized settings would be included than with grant funding, and some problem might exist in defining (or limiting) eligible settings for reimbursement purposes.

Minimizing Fraud and Abuse. An issue closely related to effective provision is avoiding fraud and abuse. General fee-for-service reimbursement is least effective in controlling fraud and abuse. Because health-related preventive services need not be associated with "hard" diagnosis or treatment some providers might bill for and then not spend the appropriate time on needed services. Reimbursement only to organized settings may yield somewhat more control because of the standards that exist for such programs.

Continuation of grants to organized settings and initiation of demonstration grants to solo and small group practices for specific prevention packages would provide the most control.

Encouraging Integration. Fee-for-service reimbursement could encourage physicians to provide some health-related preventive services, but would not necessarily yield coordination with existing resources. A lack of coordination could exist if physicians perceive utilization of other resources as reducing their incomes.

Either reimbursement for organized settings or grants to such settings can be used to encourage integration. Similarly, grants could be used to promote the development of outside linkages by making certain affiliations a condition of funding. For example, Federal funding of school-based prevention programs could require affiliation agreements with primary care centers or other facilities. Similar linkage agreements could also be devised for group practices, particularly to encourage referral networks.

Sensitivity to Varying Needs of Communities. Funding preventive services through insurance payments may detract from focusing on poorer communities and, if out-of-pocket expenses occur, it may discourage the use of preventive services that are already not perceived as a high priority by this population. This situation would also be true of reimbursement to organized settings unless additional variations depend on the community served.

Grants allow the provision of services in settings serving high-risk populations and the size of the grant can be adjusted according to the ability of the target population to pay.

Maximizing Sources of Nondiscretionary Funding. As mentioned in the discussion of primary care services, grants are always subject to funding cuts since they are discretionary. Judged on this criterion alone, health-related preventive services would be more secure if included in insurance payments.

Psychosocial Services

Effective Provision. Reimbursement of individual physicians for their own or a midlevel professional's mental health services is problematic in much the same way as fee-for-service reimbursement for preventive counseling and education. The nonpsychiatrist physician may not be trained to provide the service, and the incentive to hire a better trained midlevel professional is not present. Conversely, too little is known about the utilization and cost of reimbursing midlevel professionals directly to adopt this mode immediately.

Reimbursement to organized settings may be the most effective and general method of providing entry level psychosocial care. Universal coverage of mental health services in these programs would allow the use of nonphysician personnel, thereby increasing availability, efficiency, and appropriateness of care, while controlling the quality of services provided.

Grants are also effective in developing and evaluating models for delivery of psychosocial services or in initiating services in particular settings. In organized settings, financing could be maximized by providing reimbursement for therapy costs, plus grants for startup, training, and outreach.

Minimizing Fraud and Abuse. Regarding the related goal of avoiding fraud and abuse, less difficulty may exist than with the other health-related services because psychosocial services are recognized therapies. However, general reimbursement for mental health services on a fee-for-service basis may raise problems. For example, the State of Michigan recently required Blue Cross insurers to cover mental health services without distinguishing among providers. Unions and employers are complaining that they are now forced to pay for unorthodox and unrecognized services such as sex therapy.

Reimbursement only to organized settings would allow more control and guidance in delivering psychosocial services because many of these programs have ongoing monitoring mechanisms and have proven records of utilizing a variety of personnel. Grants would provide the tightest control.

Encouraging Integration. Fee-for-service reimbursement of physicians for psychosocial services, as for preventive services, would encourage some self-provision, but not good linkages, because some physicians distrust other health care system components (*65*).

Grants could be used to promote development or expansion of psychosocial and primary care linkages directly, in conjunction with reimbursement of organized settings. Grants might also be used to study linkages between private physicians and psychosocial service providers.

Sensitivity to Varying Needs of Communities. If we rely on fee-for-service reimbursement for psychosocial services, less affluent communities are likely to remain underserved, and resources would focus on more advantaged areas.

Organized setting reimbursement would help focus resources on community needs to the extent that the programs are in high-risk areas. However, focusing on the underserved and flexibility to provide deficit financing can best be achieved if grants are part of the financing package.

Maximizing Sources of Nondiscretionary Funding. Similar to other health-related services, reimbursement would be least vulnerable to cutbacks and most vulnerable to grants.

Support Services

Effective Provision. Unlike the other health-related services, support services include outreach and focus on unserved and underserved populations. Thus, fee-for-service reimbursement to or through a physician may not be the most appropriate mechanism.

Some discussion on including support services in a special reimbursement package for organized settings has taken place. However, the problem with defining eligible settings and ensuring monitoring, as previously mentioned in the discussion of preventive services, would exist here also.

Grants to programs that serve needy populations could specify which support services are to be provided (such as the federally funded primary care centers.) This condition is particularly important because many support services fall between the responsibilities of other agencies. Grants can also indicate the most appropriate professional and paraprofessional personnel for various services (e.g., home health visitors performing outreach).

Minimizing Fraud and Abuse. The issue of fraud and abuse is most problematic with general fee-for-service reimbursement for support services. For example, the prospect of solo physicians being paid on a fee-for-service basis for outreach may not be conducive to good medical practice. Even if reimbursement were limited to organized settings, insufficient control over Medicaid-mill operations may exist. Grants appear safest and most likely to provide adequate control of fraud and abuse.

Encouraging Integration and Linkages. Fee-for-service reimbursement for support services, as well as preventive and psychosocial services, would most likely encourage isolation of private practice physicians. For solo or small group practices, links to other agencies where support services could be provided most economically might be encouraged by experimental grants. Grants to comprehensive organized settings appear to offer the most potential for integration of support services. Reimbursement for support services to organized settings could also encourage overall integration in a less direct way.

Sensitivity to Varying Needs of Communities. Fee-for-service reimbursement is least appropriate for support services because of the lack of targeting on the underserved. Reimbursement to organized settings is limited only to the extent that the program is in an underserved area. Grants provide the greatest degree of targeting.

Maximizing Sources of Nondiscretionary Funding. Grant funding, as well as other health-related services, is vulnerable to budgetary cutbacks. However, these services are also the least likely to be provided through insurance.

Conclusions

The preceding analysis of fee-for-service reimbursement suggests that moving immediately to insurance financing for health-related preventive, psychosocial, or support services would create serious problems in quality, access, and efficiency. However, some important differences among the three programs exist.

- Regarding health-related preventive services:
  - —Solo or small group practices should not be paid on a fee-for-service basis because little assurance of adequate time or delegation to appropriate personnel exists. Experimentation with grants to such settings should be encouraged.
  - —Organized settings and special programs should continue to be paid through supplemental grants in the near future. Administratively, the Federal Government is now moving toward an identifiable portion of primary care center funds for a preventive and support services package. Also, some experimentation with a special reimbursement package for preventive services aimed at organized settings with very careful monitoring should begin.
- Regarding psychosocial services:
  - —Problems appear concerning reimbursing midlevel practitioners on a fee-for-service basis. Current experience with this type of reimbursement should be studied carefully.
  - —Organized settings—either separate mental health programs or comprehensive care providers—should be reimbursed for psychosocial services via a cost related per visit rate or capitation (including care by midlevel professionals). The Carter Administration has conducted a demonstration of Medicare cost-related reimbursement to organized freestanding mental health clinics. This investigation should provide information on costs, rates, and methods of payment. Grant funding will still be needed to ensure startup of targeting programs and training of interdisciplinary teams.
- Regarding support services:
  - —Solo and small group practitioners should not be paid for these services on a fee-for-service basis. However, some experimentation might be undertaken with linkage grants in underserved

areas, creating transportation or outreach networks for physicians to tap into.

—Organized settings should not presently be reimbursed for these services. Grant funding in an identifiable package for Federal primary care programs should continue, as should grants for such services delivered by health departments and other agencies. Some experimentation should begin by offering a support service grant to HMO's or other non-Federal organized settings.

Administrative Mechanisms

Most of the administrative issues of relevance to provision or funding of health-related services are included in an earlier discussion of primary care. The conclusions pointed to continued reliance on project grants, but with an open door to State and local governments who want to play a larger role in planning, monitoring, and operating comprehensive primary care programs. Regarding administrative arrangements for health-related services, two additional points should be made:

- First, where suggestions for pilot demonstration programs and experimentation are made, the Federal Government should play a major role in funding and evaluation.
- Second, where the goal is to establish links either between HMO's or Federal primary care centers, or between preventive and support services provided by other agencies, the creation of networks by State or local health departments and Government units appears particularly promising.

REFERENCES

(1) U.S. Department of Health, Education, and Welfare, Health Resources Administration, National Center for Health Statistics. *Vital Statistics.* Washington, D.C.: U.S. Government Printing Office, 1977.

(2) U.S. Department of Health, Education, and Welfare, Health Resources Administration, National Center for Health Statistics, Division of Health Interview Statistics. Data from the National Health Interview Survey. Washington, D.C., 1977.

(3) Kleinman, J. C. and R. W. Wilson. "Are Medically Underserved Areas Medically Underserved?" *Health Service Research* 12(2): 147–162, Summer 1977.

(4) Dutton, D. "Patterns of Ambulatory Health Care in Five Different Delivery Systems." *Medical Care* XVII(3): 221–243, March 1979.

(5) Butler, J. and E. Baxter. "Current Structure of Health Care Delivery System for Children." In *Developing a Better Health Care System for Children* Harvard Child Health Project Task Force. Vol. 3. Cambridge, Mass.: Ballinger Press, 1977.

(6) Kovar, M. G. "Background Paper for the Select Panel for the Promotion of Child Health." Unpublished data from the National Health Interview Survey for 1974. Washington, D.C., 1980.

(7) Aiken, L. H., C. E. Lewis, J. Craig, R. C. Mendenhall, R. J. Blendon, and D. E. Rogers. "The Contribution of Specialists to the Delivery of Primary Care: A New Perspective." *New England Journal of Medicine* 300: 1363–1370, June 14, 1979.

(8) Schonfeld, H. K., J. F. Heston, and I. S. Falk. "Number of Physicians Required for Primary Care Medical Care." *New England Journal of Medicine* 286: 571–576, March 16, 1972.

(9) Bridgers, W. "Rural Physician Distributions in Alabama: An Historical Perspective—1923 and 1976; Policy Considerations for the Future." *Alabama Journal of Medical Sciences* 14: 86–95, January 1977.

(10) U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, Bureau of Health Manpower. *Figures on Need for Primary Care Providers.* Washington, D.C., 1978.

(11) Chang, A. "Urban Children and Youth: The Role of Local Health Departments." Paper for National Symposium on the Role of State and Local Health Departments in Relation to Personal Health Services. Chapel Hill, N.C., 1980.

(12) U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Directory of Rural Health Programs, 1980.* Washington, D.C.: U.S. Government Printing Office, 1980.

(13) Moos, M. and A. Miller. "The Denver Neighborhood Health Program." Unpublished case study, 1979.

(14) Miller, C., E. Brooks, G. Defriese, B. Gilbert, S. Jain, and F. Kavaler. "A Survey of Local Health Departments and Their Directors." *American Journal on Public Health* 67: 931–939, 1977.

(15) Block, J., D. Bourque, R. Froh, and J. Lear. "Physicians and Hospitals: Providing Primary Care." *Medicare Group Management* 25: 35–38, 1978.

(16) American Hospital Association. *Hospital Statistics: Data from the American Hospital Association 1978 Annual Survey,* Chicago, Ill., 1979.

(17) Piore, N. "Problems and Opportunities for Community Hospitals in Primary Care." In *Community Hospitals and the Challenge of Primary Care.* J. Bryant, S. Ginsberg, J. Goldsmith, M. Olendzki, and N. Piore, eds. pp. 11–25. New York: Ballinger Press, 1976.

(18) American Medical Association. *Health Care Delivery in Rural Areas.* Chicago, Ill., 1976.

(19) Mott, F. and M. Roemer. *Rural Health and Medical Care.* New York: McGraw-Hill, 1978.

(20) Madison, D. and J. Bernstein. "Rural Health Care and the Rural Hospital." In *Community Hospitals and the Challenge of Primary Care.* J. Bryant, A. Ginsberg, S. Goldsmith, M. Olendzki, and N. Piore, eds. New York: Ballinger Press, 1976.

(21) Institute of Medicine. *A Manpower Policy for Primary Care.* IOM Publication Number 78–02. National Academy of Sciences, Washington, D.C., 1978.

(22) U.S. Department of Health, Education and Welfare, Health Services Administration, Bureau of Community Health Services. Washington, D.C., 1978.

(23) Bellin, S. and H. J. Geiger. "Actual Public Acceptance of the Neighborhood Health Center by the Urban Poor." *Journal of the American Medical Association* 214: 2147–2153, December 21, 1970.

(24) Gold, M. R. and R. G. Rosenberg. "Use of Emergency Room Services by the Population of a Neighborhood Health Center." *Health Services Report* 89: 65–70, 1974.

(25) Langston, J. *Study to Evaluate the OEO Neighborhood Health Center Program at Selected Centers.* Final Report for Office of Economic Opportunity. Geomet, Rockville, Md., 1972. Available from NTIS, PB–217955.

(26) Reynolds, R. A. "Improving Access to Health Care Among the Poor—The Neighborhood Health Center Experience." *Milbank Memorial Fund Quarterly: Health and Society* 54: 47–82, Winter 1976.

(27) Snyder, H. *et al.* "The Effect of Provision of Medical Facilities on Use by the Migrant Workers in California." *Medical Care* 6: 394–400, September–October, 1968.

(28) Sparer, G. and L. M. Okada. "Chronic Conditions and Physician Use Patterns in Ten Urban Poverty Areas." *Medical Care* 12: 549–560, July 1974.

(29) Dutton, D. "Explaining the Low Use of Health Services by the Poor: Cost, Attitudes or Delivery Systems?" *American Sociological Review* 43: 348–368, June 1978.

(30) Borus, J. "Neighborhood Health Centers as Providers of Primary Mental Health Care." *New England Journal of Medicine* 295: 140–145, 1976.

(31) Breslow, L. and A. Somers. "The Lifetime Health Monitoring Program." *New England Journal of Medicine* 296: 601–608, 1977.

(32) Birch, J. and S. Wolfe. "New and Traditional Sources of Care Evaluated by Recently Pregnant Women." *Public Health Reports* 91: 412–422, September–October, 1976.

(33) Morehead, M. A., R. S. Donaldson, and M. R. Servalli. "Comparisons Between OEO Neighborhood Health Centers and Other Health Care Providers of Ratings of the Quality of Health Care." *American Journal of Public Health* 61(7): 1294–1306, July 1971.

(34) Morehead, M. A. and R. S. Donaldson. "Quality of Clinical Management of Disease in Comprehensive Neighborhood Health Centers." *Medical Care* 12: 301–315, 1974.

(35) Morehead, M. A. *Final Report 1968-1976 of Review of Federally Supported Neighborhood Health Centers.* HSA Contract Number 105–74–170. Albert Einstein College of Medicine, Bronx, N.Y. 1977.

(36) Becker, M. H., R. H. Drachman, and J. P. Kirscht. "A Field Experiment to Evaluate Various Outcomes of Continuity of Medical Care." *American Journal of Public Health* 64: 1062–1070, November 1974.

(37) Davis, K. and R. Marshall. "Personal Health Care Services for Medically Underserved Populations." In *Papers on the National Health Planning Guidelines*, U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration. Washington, D.C., 1977.

(38) Anderson, R. E. and S. Morgan. *Comprehensive Health Care: A Southern View*. Southern Regional Council, Inc., Atlanta, Ga., 1973.

(39) Gordis, L. "Effectiveness of Comprehensive Care Programs in Preventing Rheumatic Fever." *New England Journal of Medicine* 290(8): 330–336, August 16, 1973.

(40) Okada, L. M. and T. Wan. "Patterns of Health Services Utilization in Urban Low Income Areas." Paper presented to the Institute of Management Science/Operations Research Society of America, Joint National Meeting, New Orleans, La., April 30–May 2, 1979.

(41) Klein, M. "The Impact of the Rochester Neighborhood Health Center on Hospitalization of Children, 1968–1970." *Pediatrics* 51: 833–839, May 1973.

(42) Bellin, S. *et al.* "Impact of Ambulatory Health Care Services on the Demand for Hospital Beds: A Study of Tufts' Neighborhood Health Center at Columbia Point in Boston." *New England Journal of Medicine* 280: 808–812, 1969.

(43) Hochheiser, L. E. "Effect of the Neighborhood Health Center on the Use of Pediatric Emergency Departments in Rochester, New York." *New England Journal of Medicine* 285: 148–152, 1971.

(44) Sussman, E. J. "Can Primary Care Deliver?" *Journal of Ambulatory Care Management* 2: 23–39, August 1979.

(45) Chabot, A. "Improved Infant Mortality Rates in a Population Served by a Comprehensive Neighborhood Health Program." *Pediatrics* 47: 989–994, June 1971.

(46) U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Analysis of Physician Location in Relation to Degree of Ruralness and Poverty*. Washington, D.C., 1980.

(47) Sloan, F., J. Cromwell, and J. B. Mitchell. *A Study of Administrative Costs in Physicians' Offices and Medicaid Participation*. Prepared by Abt Associates for U.S. Department of Health, Education, and Welfare, Social Security Administration, Division of Health Insurance Studies, Office of Research and Statistics, Washington, D.C., 1977.

(48) U.S. General Accounting Office. *States Plan for and Use Federal Funds To Provide Health Services*. Washington, D.C.: U.S. Government Printing Office, December 1975.

(49) Klerman, L. *Title V Maternal and Child Health and Cripple Children's Services and the Social Security Act: Problems and Opportunities*. Report for U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Washington, D.C., 1980.

(50) Brown, R., B. Gurunanjappa, R. Hank, and D. Bitsuie. "The Epidemiology of Accidents Among Navajo Indians." *Public Health Reports* 85: 881, 1970.

(51) U.S. General Accounting Office. *Early Childhood and Family Development Programs Improve the Quality of Life for Low Income Families*. HRD 79–40, Washington, D.C., U.S. Government Printing Office, 1979.

(52) Casey, P., M. Sharp, and F. Loda. "Child Health Supervision Under Two Years of Age: A Review of Its Content and Effectiveness." *Journal of Pediatrics* 95: 1–9, 1979.

(53) Edwards, L., M. Steinman, K. Arnold, and E. Hakanson. "Adolescent Pregnancy Prevention Services in High School Clinics." *Family Planning Perspectives* 12(1): 6–14, 1980.

(54) Jones, K. and T. Vischi. "Impact of Alcohol, Drug Abuse and Mental Health Treatment on Medical Care Utilization: A Review of the Research Literature." *Medical Care* 17, 1979.

(55) Larson, L. *Promotion of Child Health and Development For Working Class Mother-Infant Pairs: An Efficacy Study of Home Visits*. Department of Pediatrics, McGill University, Montreal, 1979.

(56) Kempe, H. "Approaches to Preventing Child Abuse: The Health Visitor Concept." *American Journal on Disturbed Children* 130: 941–947, 1976.

(57) Gutelis, M., A. Kirsch, and S. MacDonald, *et al.* "Controlled Study of Child Health Supervision: Behavioral Results." *Pediatrics* 60: 294–304, 1977.

(58) Cobb, S. "Social Support as a Moderation of Life Stress." *Psychosomatic Medicine* 38: 300–314, 1976.

(59) Spiegel, C. and F. Lindaman. "Children Can't Fly: A Program to Prevent Pregnant Childhood Morbidity and Mortality From Window Falls." *American Journal of Public Health* 67: 1143–1146, 1977.

(60) Peacock, P., A. Gelman, and T. Lutins. "Preventive Health Care Strategies for Health Maintenance Organization." *Preventive Medicine* 4: 183–225, 1975.
(61) Yale University School of Medicine. *Evaluation of a Supplementary Feeding Program for Women, Infants and Children.* EPH 510–Project 18, New Haven, Conn., 1978.
(62) Hoekelman, R. "Child Health Supervision." In *Principles of Pediatrics: Health Care of the Young.* R. Hoekelman *et al.* eds. New York: McGraw–Hill, 1978.
(63) Chamberlain, R., D. Olds, and P. Dawson. "Are Periodic Office Visits Obsolete as a Method of Delivering Preventive Services to Mothers and Young Children?" Paper presented at the American Public Health Association Meeting, New York, November 4–8, 1979.
(64) Lawrence, R. "The Primary Care Physician Mental Health Issues." In *Mental Health Services in General Health Care* Vol. 1. pp. 167–176, Institute of Medicine, National Academy of Sciences, Washington, D.C., 1979.
(65) Pakula, L. "Mental Health in a Fee-for-Service Pediatric Practice." In *Mental Health Services in General Health Care.* Vol. 1. pp. 59–64, Institute of Medicine, National Academy of Sciences, Washington, D.C., 1979.
(66) Goldberg, I., D. Regier, T. McInerny, I. Pless, and K. Roghmann. "The Role of the Pediatrician in the Delivery of Mental Health Services to Children." *Pediatrics* 63: 898–909, 1979.
(67) U.S. General Accounting Office. *Better Management and More Resources Needed to Strengthen Federal Efforts to Improve Pregnancy Outcome.* HRD 80–24. Washington, D.C: U.S. Government Printing Office, 1980.
(68) U.S. Department of Health, Education, and Welfare. *Child Health Care—EPSDT and MCH: A Service Delivery Assessment.* Washington, D.C., 1979.
(69) Page, W. and P. Novak. "System Barriers and Opportunities in Federal, State and Local Prevention Programs for Children and Youth." Prepared for Alcohol Drug Abuse and Mental Health Administration, Washington, D.C., August 1979.
(70) U.S. Department of Health, Education, and Welfare, Office of Child Health Affairs. *A Proposal for New Federal Leadership in Child and Maternal Health Care in the United States.* Washington, D.C.: U.S. Government Printing Office, 1977.
(71) Children's Defense Fund. *EPSDT: Does It Spell Health Care for Poor Children?* Washington, D.C., 1977.
(72) Porter, P., R. Leibel, T. Gilbert, and J. Fellows. "Municipal Child Health Services: A Ten Year Reorganization." *Pediatrics* 58: 704–712, 1976.
(73) Department of Health, Education, and Welfare, Alcohol, Drug Abuse and Mental Health Administration. *The Alcohol, Drug Abuse and Mental Health National Data Book.* DHEW Publication Number 80–938, Washington, D.C., U.S. Government Printing Office, January 1980.
(74) Coleman, J., D. Patrick, and S. Baker. "The Mental Health of Children in an HMO Program." *Journal of Pediatrics* 91: 150–153, 1977.
(75) Borus, J., B. Burns, A. Jacobson, L. Macht, R. Morrill, and W. Wilson. "Coordinated Mental Health Care in Neighborhood Health Centers." In *Mental Health Services in General Health Care.* Vol. 2. Institute of Medicine, National Academy of Sciences, Washington, D.C., 1979.
(76) Johnson, D., H. Leler, L. Rios, L. Brandt, A. Kahn, E. Mazeika, M. Frede, and B. Bisett. "The Houston Parent-Child Development Center." *American Journal of Orthopsychiatry* 44: 121–128, 1974.
(77) Kirk, T., G. Rice, and P. Allen. "EPSDT—One Quarter Million Screenings in Michigan." *American Journal of Public Health* 66: 482–484, 1976.
(78) Berki, S. E. and M. Ashcraft. "On the Analysis of Ambulatory Utilization: An Investigation of the Roles of Need, Access, and Price as Predictors of Illness and Preventive Visits." *Medical Care* 17(12): 1163–1181, 1979.
(79) Brotherston, J. "United Kingdom." In *The Impact of Health Services on Medical Education: A Global View.* J. Bowers and E. Purcell eds. pp. 305–330. Josiah Macy Foundation: New York. 1976.
(80) Lewis, J. "Toward Comprehensive Child Health Care: The School Based Service Delivery Model." Paper presented at the American Health Association Meeting, Washington, D.C., November 1977.
(81) Hsi, A. and R. Thompson. A Population Based Assessment of Well Child Care Services of Puget Sound. Submitted for publication in *Pediatrics.*
(82) Zelnik, M., and J. Kantner. "Sexual and Contraceptive Experience of Young and Unmarried Women in the United States, 1976 and 1971." *Family Planning Perspectives* 9: 55, 1977.
(83) Macht, L. "Neighborhood Health Centers—Perspectives on Opportunity for Comprehensive Ambulatory Health Care." *New England Journal of Medicine* Vol. 292. pp. 591–592, 1975.
(84) Orso, C. "Delivering Ambulatory Health Care: The Successful Experience of An Urban Neighborhood Health Center." *Medical Care* 17(2): 111–126, 1979.

(85) Williams, S., P. Diehr, W. Drucker, and W. Richardson. "Mental Health Services: Utilization by Low-Income Enrollees in a Prepaid Group Practice Plan and an Independent Practice Plan." *Medical Care* 17: p. 139–151, 1979.

(86) U.S. Department of Health, Education, and Welfare, Office of Child Development. *Houston Parent-Child Development Center: Final Report.* DHEW, Health Care Financing Administration. Washington, D.C., U.S. Government Printing Office, 1976.

(87) MIDCO Educational Associates. *Investigation of the Effects of Parent Participation in Head Start.* Final Technical Report. ERIC Document No. 080215, September 1972.

(88) Carrier, B. and M. Holmes. *Clustering and the Selection of a Representative Sample for a Study of the Impact of the National Program Center for Community Research.* ERIC Document No. 069353, March 1972.

(89) Carpenter, J. and L. Towle. "A Follow-Up Study on Referral From an Internist to Outside and Inside Mental Health Services." Unpublished manuscript, 1974.

(90) U.S. Department of Health, Education, and Welfare, Office of Human Development Services, Administration on Children, Youth, and Families. *A Review of Head Start Research Since 1969 and An Annotated Bibliography.* Washington, D.C., U.S. Government Printing Office, 1978.

(91) Chamberlain, R., E. Szumowski, and T. Zastowny. "An Evaluation of Efforts to Educate Mothers About Child Development in Pediatric Office Practices." *American Journal on Public Health* 69: 875–885, 1979.

(92) Foltz, A. "EPSDT: Lessons for National Health Insurance for Children." Paper presented at American Public Health Association Meeting, Chicago, Ill., November 16–20, 1975.

(93) Greenberg, G. and R. Luskin. *Federal Program Implementation in Selected States: Michigan, Pennsylvania, and Alabama.* National Center for Health Services Research, Hyattsville, Md., 1979.

(94) Children's Defense Fund. *EPSDT: Does It Spell Health Care for Poor Children.* Washington, D.C., 1977.

BIBLIOGRAPHY

Borus, J., B. Burns, A. Jacobson, L. Macht, R. Morrill, and E. Wilson. "Executive Summary: Coordinated Mental Health Care in Neighborhood Health Centers." In *Mental Health Services in General Health Care,* Institute of Medicine, National Academy of Sciences, Washington, D.C. pp. 145–148, 1979.

Cowen, D., G. Culley, D. Hochstresser, M. Briscoe, and G. Somes. "Impact of a Rural Preventive Care Outreach Program on Children's Health." *American Journal of Public Health* 68: 471–476, 1978.

Fink, D. "Strategies for Systems Integration: Making Health Center and Hospital Linkages Work." Paper for National Association of Community Health Centers Conference, Boston, June 1978.

Follette, W. and N. Cummings. "Psychiatric Services and Medical Utilization in a Prepaid Health Plan Setting." *Medical Care* 5: 25–35, 1967.

Foltz, A. and D. Brown. "State Response to Federal Policy: Children, EPSDT, and the Medicaid Muddle." *Medical Care* 13: 639–640, 1975.

Miller, A., M. Moos, J. Kotch, M. Brown, and M. Brainard. "Role and New Initiatives of Local Health Departments for Delivery of Personal Health Services." Paper for National Symposium on the Role of State and Local Governments in Relation to Personal Health Services, Chapel Hill, N.C., 1980.

Morehead, M. A. "Evaluating Quality of Medical Care in the Neighborhood Health Center Program of the Office of Economic Opportunity." *Medical Care* 8: 118–131 March–April, 1970.

Schwartz, W. B., J. P. Newhouse, B. W. Bennett, and A. P. Williams. "Do Board Certified Specialists Diffuse? Facts and Theory." Working Draft for RAND Corporation, Santa Monica, Cal., 1979.

Sclar, E. and V. Hoffman. "Polynominal Distributive Lag Models and Mental Health Service Planning." Paper presented at the Statistics Section Annual Meeting, American Public Health Association, Los Angeles, Cal., October 1978.

Sparer, G. and A. Anderson. "Costs of Services at Neighborhood Health Centers—A Comparative Analysis." *New England Journal of Medicine* 286: 1241, 1972.

U.S. Department of Health, Education, and Welfare, National Center for Health Statistics. *Health United States, 1979.* Publication Number (PHS) 80-1232, Washington, D.C.: U.S. Government Printing Office, 1980.

U.S. Department of Health, Education, and Welfare. Office of Child Health Affairs. *School Health.* Washington, D.C.: U.S. Government Printing Office, 1976.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Directory of Rural Health Care Programs, 1979.* Washington, D.C., 1980.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Review of 32 Studies Related to Physician Location in Underserved Areas.* Washington, D.C., 1980.

U.S. Department of Health and Human Services, Public Health Service, Health Services Administration, Bureau of Health Services. *Information on Federal Primary Care Programs.* Washington, D.C., 1980.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Information on Costs in Federal Primary Care Centers and for Medicaid Recipients Generally for 1979.* Washington, D.C.

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SECTION IV

FINANCING AND ORGANIZATION OF SERVICES

IMPROVING THE FINANCING OF HEALTH CARE FOR CHILDREN AND PREGNANT WOMEN

by
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INTRODUCTION

Health care for children and pregnant women in the United States is paid for or financed in many ways. Of the $168 billion spent on personal health services in 1978 (*1*), approximately one-third was paid out-of-pocket for visits to doctors, health centers, or hospitals. The remainder of the costs were paid by Federal, State and local government programs (38.7 percent in 1978 including Medicare), widely varying private insurance policies (27 percent in 1978), and charitable and industrial health programs (1.3 percent in 1978). For children, far more is paid out-of-pocket (nearly 39 percent in fiscal 1977, the latest data available). This structure of payment for health care is the result of several decades of increases in the numbers of holders of private health insurance sold by hundreds of private companies to thousands of employers, trade unions, and individuals, and of the simultaneous development of numerous public Federal, State, and local programs. While most of these developments clearly reflect progress, unplanned and uncoordinated growth has left many children and pregnant women unable to afford desirable health care. The nature of insurance coverage is such that most Americans will probably go through periods when they or their children have no insurance coverage or other source of payment for needed services, and it is certain that many more will move continually from one program to another or resort to public clinics that cost less or nothing. This rapid growth has led to public and private programs that sometimes provide less than ideal health care for children and pregnant women—care that may be both more costly and less effective in the long run.

This paper focuses on financing and addresses the organization, appropriateness, and accessibility of care for pregnant women, children, adolescents and handicapped children only when changes in financing might lead to improvements in such care. The merits of alternative systems or structures of health care are discussed elsewhere in this volume

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(see Yordy, Klerman (Title V), and Holohean); this paper addresses alternative structures only insofar as they relate to financing.

Finally, the concluding suggested improvements applied to one approach are meant to serve as a model for improvements in financing health care and can be used as a starting point for the consideration of alternatives.

Many plans for "improving" the financing of health services have been proposed in recent years including national health insurance and other schemes. Some call for the greatly expanded role of government in the health insurance and health care field, and others call primarily for improvement in the private sector. No compelling argument can be made for one over the other, and this review instead focuses on current economic and political realities and the types of improvements that seem feasible for the next 5 to 10 years.

THE FIVE BASIC EXISTING METHODS OF FINANCING HEALTH CARE IN THE UNITED STATES

Although insurance and financing systems for health care are extremely diverse, it is possible to distinguish five basic methods of financing health care for pregnant women and children: private payment, Federal grant, Medicaid, public provider, and voluntary giving. Most proposals for new or changed methods to insure or finance health care for children and pregnant women, including national health insurance bills, fall into one of these basic types. The five methods are distinguished by the relative roles of government and the private sector in each.

Approach 1: Private Payment

This approach to financing health care in the United States, which includes payments by private individuals and insurance institutions, with the government role limited to providing incentives and setting regulatory limits, covers the majority of Americans and accounts for the majority of the dollars spent on health care. Private insurance plans with widely varying coverages, cost-sharing arrangements, and premiums covered some 168 million Americans in 1977. These plans paid 27.2 percent of the amount spent in 1977 for "personal health services." Individuals paid another 32.6 percent of the costs of these services out-of-pocket (*2*).[1]

Private health insurance, the key to this approach, has grown rapidly since World War II, when employers were greatly restricted in increasing cash wages but were permitted to augment their compensation of

[1]It is important to note that while this private payment approach pays the largest share of *personal* health care costs of the five approaches, and indeed is perhaps the dominant financial influence on health care, it pays little of the costs of public health and other health-related services generally provided by agencies of government and voluntary agencies. These agencies are discussed under Approach 4 below.

employees without restriction if it took the form of paying for health insurance plans as a fringe benefit. In addition, Internal Revenue Code provisions that allow the employer to claim health insurance premiums as a business expense and that do not count the premiums as taxable income to the employee have made health insurance a sought-after fringe benefit by labor unions. Given these incentives, private health insurance rose from paying for 12.2 percent of the costs to consumers for personal health services in 1950 to paying 45.5 percent of these costs and covering 78 percent of the population in 1977.

Today, most individuals purchase some type of health insurance directly from private insurers based on what they want and can afford. Most people select a group insurance plan or membership in a health management organization (HMO) offered and paid for in whole or in part by their employer. Many who have no employer, or whose employer offers no group plan, purchase individual insurance coverage. The comprehensiveness of coverage, the premium, and other features of this insurance are left largely to the individual, the employers, the unions that negotiate with employers, and the insurer. As a result, thousands of different private insurance plans exist with widely varying provisions. Some cover the costs of nearly all personal health services while others pay only limited amounts for hospital care, leaving individuals to pay most of their health care costs out-of-pocket.

In addition, since employers and individuals are free not to purchase insurance if they so choose, millions of individuals and their families are not covered by health insurance because of costs or other factors.

The government role in this "private payment approach" to financing care is largely limited to (1) State regulation of insurers, (2) Federal and State regulation of providers of health care, and (3) Federal tax incentives to encourage the purchase of insurance, and Federal grants and regulations that encourage innovation through HMO's.

State Insurance Regulation

Government interference in the private insurance industry is very limited by the McCarron-Ferguson Act, under which insurance regulation is left to State governments. State regulation of insurance companies deals almost exclusively with issues regarding their solvency. With some exceptions, the legislation does not affect the content or coverages of insurance policies, nor do these laws require that insurance be sold to any or all individuals at any particular rate. Some States have enacted legislation that permits more extensive regulation of insurers, but do not actively implement it.

The major exception has been growing State regulation of Blue Cross and Blue Shield plans. Because most Blue Cross and Blue Shield plans are nonprofit corporations chartered on a tax-exempt basis by State governments, States frequently require them to make health insurance widely available at approved rates to groups and individuals who otherwise could not afford insurance. In some States the "Blues" are required to enroll anyone who requests health insurance ("open enrollment") under policies and at rates approved by the State insurance commissioner. These rates

frequently are subsidized and are lower than the true cost of the insurance for individuals covered. The subsidy is obtained by charging premiums for group coverages that are somewhat higher than the group's costs. The theory is that Blue Cross and Blue Shield plans, because they save money through tax exemptions, are able to accumulate these extra dollars for subsidizing individual plans into their group rates and still be competitive with the rates of other insurers.

Some State governments have also enacted laws that require all insurers in the State to offer insurance to all individuals who seek it, including high-risk groups, by participating in "pool" arrangements whereby the insurance companies share proportionately in any financial losses from the insurance.

Finally, some State governments, such as those of Massachusetts, Rhode Island, Hawaii, and Michigan, have enacted laws that require either employers to include specific health insurance coverages in any insurance plan they purchase, or insurers to include, or at least offer, specific coverages in any insurance plan they sell in the State. These requirements tend to focus on specific benefits such as alcohol and drug abuse treatment, mental health care, or prosthetic devices. However, no State, with the possible exception of Hawaii, goes so far as to specify comprehensive insurance coverages or ranges of coverages an insurer must sell, or to define acceptable cost-sharing or other insurance practices.

Federal Tax Incentives for Insurance

The Federal Government does not regulate health insurance except by requiring employers to offer their employees a choice between health maintenance organizations and more traditional insurance forms. The HMO Act requires that the HMO choice be available where feasible and provides Federal grants for startup costs of such organizations. By providing funds for some of the planning, development, and early operating losses of these organizations, the law seeks to encourage their development and competition with other insurance forms and thereby to encourage less costly health insurance and health care.

The Federal Government's most important activity regarding insurance is the provision of tax incentives. As mentioned earlier, employer payments of premiums can be considered a business expense and employer-paid premiums are not counted as taxable income for employees. In addition, individuals are permitted for tax purposes to deduct the cost of insurance premiums they pay themselves as a medical expense. Health insurance is a very attractive fringe benefit for employees, and labor unions have bargained aggressively for increasingly comprehensive employer-paid coverage.

Federal and State Regulation of Providers and Resource Development

During recent years Federal and State governments have developed a number of programs of a regulatory nature in efforts to make health care more evenly accessible, and to restrain increases in health care costs.

Examples of these activities include State rate-setting commissions and certificate-of-need programs, and health planning activities resulting from the 1974 National Health Planning Act and the 1979 amendments. In addition, Federal and State governments establish standards and administrative processes related to private insurer relationships with hospitals. Examples are the institutional utilization review programs required by Medicare and Medicaid regulations, and the Professional Standards Review Organization with which many private insurers contract for review of their claims.

These government programs frequently have the support and participation of private insurers, who see such regulatory activities as a means of regulating access to and costs of health services—a difficult task to accomplish through the insuring mechanism.

Government regulatory efforts of this sort are still relatively new. Initially government relied on self-regulation and voluntary compliance by hospitals and other institutional providers under privately established standards. Strong cost control measures were not believed to be needed. As new programs have become established and health care costs have continued to rise, institutions have increasingly been required to comply with regulations as a condition of reimbursement by Medicare and Medicaid, and even as a condition for collecting from private individuals and private insurers. The proposed Federal programs for hospital cost containment clearly reflect a growing sense in government of the need for more rigorous cost-containment programs.

However, such government regulatory programs are as controversial as they are recent. The hospital cost containment legislation is among the most politically controversial bills before Congress, and regulatory programs across the country are being widely challenged (often in the courts) by providers and consumers alike. At the moment the only clear policy consensus seems to be that at least some outside regulatory limits are needed on provider rates and expansion of services, and public forums are necessary for the review of needed services as compared to those proposed by providers.

Approach 2: The Federal Grant System

This approach involves financing care through payments by private individuals and insurance institutions, with government grant subsidies for startup and operation of services to underserved and low-income populations.

Many Americans live in areas of the country where services are not available, or need certain types of services that are not available and that seem unlikely to become available under the private payment approach. Inner city neighborhoods and rural communities, for example, frequently lack adequate numbers of family physicians or other sources of primary care, and the care that is available in public hospitals is often inadequate. This situation has been growing worse as more and more physicians and other providers set up practice in suburban areas or near major medical

centers. The private payment approach does little to change this trend. Private insurers tend to have the fewest enrollees in these areas, and private payments generally are sparser in these areas and less likely to generate the capital needed for expanding services or for offering needed special services.

The private payment approach can clearly result in better insurance and consequently more health services for residents of areas of higher employment and affluence while those in areas of lower employment lose services because of inability of providers to collect fees.

Grants to finance services have been used to augment private payments by providing funds to develop needed health care resources and to demonstrate better ways of providing health care, under the assumption that once started, government funds will cease and the private payment system will support ongoing costs and improved practices. Grants have also been used to pay ongoing costs of health care services for some populations when private payment seemed unlikely. Existing grant programs seem to include elements of both.

A number of Federal programs, often with State counterparts, grant funds to health care providers to startup and operate facilities and provide health care primarily for underserved populations. One of the first major programs of this kind, the Hill-Burton program, provided funds for the construction of hospitals in underserved areas. The intent of the later O.E.O. Neighborhood Health Centers (now the DHHS Community Health Centers) program was to demonstrate how adequate health care could be provided for the people in the areas and to fund at least the startup and early operating costs of these centers. The demonstration components of the Maternal and Child Health program, authorized by Titles V and XX of the Social Security Act, seek to create resources to provide adequate health care to children and pregnant women who otherwise might not get it. Migrant Centers have the same objective for the migrant population. The Mental Health Centers program provides access to ambulatory mental health services to the entire population because of the extreme shortage of these services and has funded the startup and the first 8 years of operation.

The Government Role in the Federal Grant Approach

The Federal Government legislates and regulates basic requirements that must be met for receiving grant funds to start health centers. The range of services and the type of area that is eligible are also defined. In some programs, the State government has the final decision, within the Federal guidelines, as to which projects are funded.

The Federal Government and, in some cases, State governments appropriate funds yearly for health center programs. The breadth of services offered by such centers and the number of centers funded depend directly on these appropriations.

In this way health care is offered by public, i.e., State and local government, or private health care providers who apply for State or Federal Government grant funds to start up and offer services. The design and operation of the centers, as well as the decision about the need for

them, is up to local government and the community as long as they operate within Federal and State guidelines.

Services offered by these programs are usually focused on primary care and often include many services that are especially important for low-income populations, as well as services that are desirable for everyone but often not available. They include preventive, mental health and social services, and even nutrition services, counseling, health education, and consultations with schools and courts. Tight Federal and State grant budgets in recent years, however, have led to narrower ranges of services than were originally conceived of for these programs, and individual centers vary considerably in what they offer. Many centers do not include hospital facilities, and many do not pay for the hospital care their patients use.

These programs usually offer their services to all children and pregnant women in their area who request them, and collect fees scaled to the patient's ability to pay. These scaled fees may vary from center to center. If the patient has private insurance or Medicaid or Medicare the center may attempt to collect from those sources. Federal and State grant funds are intended to pay for only what cannot be collected, but they often constitute a major portion of the funding for the centers because so many patients in these centers have little insurance, low incomes, and no Medicaid eligibility. If hospitalization is required for a center patient, the care may be provided by a center physician but the hospital costs may be charged to the patient to be paid in whatever way possible. This means hospital care is frequently provided at a public or municipal hospital. Tight Federal and State grant budgets have put pressure on some centers to focus their attention on Medicaid recipients and/or higher income individuals from whom higher percentages of fees can be collected.

Approach 3: Medicaid

Another approach to financing health care is to have the Government finance and purchase the health care for a specific population. In enacting Title XIX (Medicaid) of the Social Security Act, the Federal Government identified certain people who would be eligible to have their health care paid for directly by the Federal Government, and State governments if the State chose to establish a program. Those eligible are primarily low-income individuals who are aged, disabled, or blind; and poor single parents and their dependent children who have difficulty in paying for care because they are unable to find or afford adequate private health insurance and unable to pay for their health care out-of-pocket.

The private financing of care for very low-income Americans is difficult, because if they work at all, they usually have only part-time or seasonal employment or work for small employers in very low paying jobs. As a result they seldom have an opportunity to join group health insurance plans where the employer pays all or part of the premium, and they cannot afford the high cost of premiums for individual insurance.

Medicaid, in fiscal 1977, covered about 21.6 million people, including an estimated 11 million children. The program excludes, however, millions of children whose families are "poor" by the definition of the national

"poverty level," because of family status, institutionalization, or other factors.

One aspect of the Medicaid program, the Early and Periodic Screening, Diagnosis and Treatment (EPSDT) program, is especially important to children. The program offers health screening, diagnosis, and treatment care to all Medicaid children. However, due to financial and other limitations EPSDT had provided only 3 million children with up-to-date assessments in fiscal 1977.

The Government Role in Medicaid

Unlike Medicare, which is administered by the Federal Government, Medicaid is run by the States within Federal guidelines, and the programs vary considerably from State to State in terms of eligibility, comprehensiveness of services and other factors.

The program is financed by a combination of Federal and State or local government funds. The Federal contribution ranges from 50 percent to 83 percent, depending on the State's per capita income.

The Medicaid program, through annual Federal and State appropriations, pays for the cost of care to low-income Americans only if they are eligible for federally assisted "welfare payments"; are disabled, blind, or aged; or are members of single parent families;. Further, State governments set their own eligibility standards. Income standards range from $5,000 or more for a family of four in New York and California to less than $2,500 in North Carolina and Texas.

In addition, States have options to include certain other groups under this program. They also have the option to cover the so-called medically needy (those with incomes up to one-third higher than the levels for eligibility for cash assistance) through "spend-down" provisions of the Medicaid program. Under such provisions, medical expenses equivalent to the difference between actual income and the eligibility level for cash assistance qualifies the individual for Medicaid. "Spend-down" amounts to a type of catastrophic health insurance for the near-poor.

A State Medicaid program must cover certain health care services, while others are optional. States, moreover, can limit the amount, duration, and scope of any services they pay for. Each State's Medicaid program must provide early and periodic screening, diagnosis, and treatment (EPSDT) services for all eligible persons under age 21 or be subject to Federal penalties. Any limitations in coverage under a State Medicaid program apply to this group, but certain services that are optional for adults must be included in the EPSDT program (specifically eyeglasses, hearing aids and dental care).

Many State Medicaid programs contract with private insurers to serve as "intermediaries" to perform basic insurance functions, within guidelines established by the Federal and State governments, such as paying providers for services, reviewing claims and so on. The insurers do not collect premiums. In this system, the Medicaid programs reimburse the insurers for claims and administrative costs.

The actual health services for Medicaid beneficiaries are provided by the same providers who also provide care for private payment. State

Medicaid programs establish fees for physicians and other professional providers of services but are required to reimburse hospitals on a basis comparable to that used in the Federal Medicare program. Physicians who take Medicaid patients, however, must accept Medicaid's payments as payment in full. Because these payments are substantially lower than customary charges, in many States large numbers of physicians decline to take Medicaid patients.

Hospitals and other institutional providers who are paid on a cost-reimbursement basis likewise cannot charge the patient additional amounts for covered services. Such a large percentage of hospital income is derived from Medicaid and Medicare that the Federal Government has considerable leverage in hospital practices and has begun rigorous negotiations with these providers to require increasingly detailed justification for their cost increases, utilization of services, and any proposed expansions in services.

Approach 4: The Public Provider System

The public provider system includes public financing and providing of care through government staff and facilities for selected services and populations. Certain "public health" services are provided to the entire population through this method. Infectious disease surveillance, foreign quarantine, and mass immunizations are conducted by a combination of Federal Government and State health agencies. State and county governments with varying types of help from the Federal Government, conduct programs of education in maternity and child care, programs in alcoholism and drug abuse, water supplies and other health related activities that affect children and pregnant women. They also implement school breakfast and lunch programs, which subsidize costs of school meals for all children and provide free meals to low-income families. Further, while they are seldom classified as health activities in government organization charts, activities of the courts and/or penal systems regarding juvenile offenders; child and wife abuse or neglect, and child custody; State and county programs of protective services; special education programs; programs of mental health consultation and education to schools and courts; and housing also bear directly on the health of children and pregnant women.

State and local governments also frequently offer a range of special "public health" services to low-income individuals and particularly to low-income children and pregnant women. Individualized services of nurses, social workers, and others are provided to pregnant women, parents, and children who are identified by other health care providers, schools, or courts, or by the health departments themselves, as needing such services. State and local governments also identify low-income individuals and families who are eligible for housing subsidy programs and for the Supplemental Food Program for Women, Infants and Children (WIC) (aimed directly at the nutritional needs of children and pregnant women). Nurses and social workers sometimes are based in health centers supported by Federal, State or county grant funds (such as those

described in the Federal grant system above), or in public hospitals and clinics operated directly by the State or local government.

State and local government hospitals and clinics also provide a wide range of health services, primarily for low-income individuals and families. Such facilities are seldom restricted to serving low-income individuals and families only. In fact they are sometimes the primary source of some health services, such as emergency services, for the entire population in their area. However, they, like the centers funded by Federal grants in Approach 2, are the health care providers of last resort for anyone who has no private health insurance, no eligibility for Medicare or Medicaid, and limited or no ability to pay for health care out-of-pocket. Indeed, these facilities are often the primary source of care in many areas for Medicaid recipients and lower income individuals and families (even for some with private insurance coverage) because they serve neighborhoods or areas where other providers are scarce or absent or because Medicaid or Medicare payment levels are not accepted by other providers. These State and local providers generally collect all they can from Medicaid, private insurance, and individuals but are funded largely from State and local government budgets. Their range of services reflects directly the extent of investment State and local governments are willing to make in them. These State and local activities are far more extensive than the Federal grant activities described in Approach 2 and indeed are the recipients of many of those grants.

In some cases, such as the Denver Hospital Corporation, a municipal hospital has drawn together a comprehensive network of hospitals, neighborhood health centers, and satellite stations, through which State and local funds, State and Federal Medicaid funds, and Federal grant funds of various kinds are coordinated and integrated. They may also be the organizational base for nurses and social workers who provide individualized neighborhood public health services and facilitate other health-related services for families, such as food-stamp and WIC eligibility. In such instances, the State and local public provider system is filling in the gaps left by categorical Federal grant programs, by Medicaid, and by private payments. The success of the Denver system is attributed to the financial support given it by State and local governments.

Finally, public providers are the source of care for a number of special populations. State and local governments operate facilities and provide health care for orphans, the mentally retarded, the mentally disturbed, alcoholics and drug abusers, prisoners, and others. Health care for children and pregnant women in these settings is almost exclusively paid for by the State. Similarly, native Americans, veterans, merchant seamen, active military personnel, and in some cases their dependents, are offered care directly by the Federal Government.

Approach 5: Voluntary Giving

Charitable and voluntary actions support and complement the other health care systems in several important ways. First, many social services

are offered especially to low-income individuals, including adoption services, foster care, and family planning.

Second, many private providers of care offer significant amounts of subsidized services to low-income individuals. Private hospitals "write off" as bad debts the costs of care to patients who do not pay their bills and the private payment system in part reimburses them. In some cases though, this "write-off" occurs only after professional bill collectors have been unable to collect, and action hardly seems charitable. In other hospitals collection practices are less stringent. In some (largely private voluntary hospitals and clinics), low-income patients are accepted for care at a reduced cost or no cost and the real costs are recovered through charitable donations, "bad debt" subsidies, and other subsidies available to the institution. Many hospitals and clinics operate maternity clinics on such a basis. In fact, some services of this sort are required of hospitals that have received Federal funds for hospital expansion under the Hill-Burton program. Likewise, many physicians and other professional providers offer reduced rates or free care to low-income patients. It is difficult to measure accurately the magnitude of services offered by private providers or paid for by charitable contributions, or the number of people served. Because charitable and voluntary services clearly are limited and operate for the most part outside government influences, they do not serve as a base for expanded services to children and pregnant women and will not be discussed further except by reference. However, such services are clearly a factor in the operation of current and future financing systems.

WAYS TO IMPROVE THE FIVE FINANCING METHODS TO FACILITATE THE BEST HEALTH CARE FOR CHILDREN AND PREGNANT WOMEN

Ideally health care for children and pregnant women should have the following characteristics:

- Comprehensiveness: All the services most appropriate for good health should be available.
- Universal accessibility: All children and pregnant women should have access to these services.
- Appropriate provision and utilization: The services should be offered, paid for, and used in ways most appropriate for good health.

The method of financing can either discourage or facilitate health care of this kind.

Comprehensive Care

Comprehensive care for children and pregnant women includes many health care services that are covered by private insurance for only some enrollees, or are not covered at all.

Some individuals and employers purchase very comprehensive coverage with an insurer or health maintenance organization that pays for most medical expenses so that individuals have to pay very little out-of-pocket when they or their children receive medical services. Others purchase narrower coverage that pays, for example, for all or part of hospital-based care but leaves doctor office visits and other medical services to be paid out-of-pocket by the individual. Most insurance is designed to cover high-cost hospital inpatient care and to avoid the additional premiums required to cover the primary care in doctors' offices, outpatient clinics, and health centers that is vitally important for children and pregnant women. Because of the deductibles and coinsurance that are part of this type of insurance, most policies pay very little for child health because even routine acute care for a child in the doctor's office seldom exceeds the deductible. With regard to services for pregnant women, insurance is available that specifically excludes coverage for maternity care, and insurers are free to limit the benefits they cover in almost any way they choose and to further limit their risks by excluding "preexisting" conditions or placing limits on how much they will pay for some services, including maternity care.

In addition, insurance offers little coverage for services that are not related to an acute illness, a health condition, or injury, or that are not delivered by, or under the direction of, a physician, or that have a high social or educational (as opposed to medical) orientation. Consequently, private health insurance seldom covers preventive care, mental health care, rehabilitative care, social services, eyeglasses, hearing aids, prescription drugs, and prosthetic devices; and pays nothing toward the costs of health education, social services, nutrition, public health and other activities carried out by State and local government. Also, insurance seldom pays for the services of nonphysician providers of care unless they are employed by a hospital or other institutional provider.

As a result of these various insuring practices, many Americans pay most of their bills out-of-pocket for such critical services for children and pregnant women as the following:

- Well-child and prenatal care, health screening and assessments, immunizations, family planning, infertility services, sterilization, abortion and contraceptives
- Routine acute care for children
- Counseling and guidance, school health programs, social services, home health, homemaker, transportation, day care, and adoption services

Finally, of course, the private payment system contributes nothing to a variety of public health and community services, such as clean water and sanitation, education, housing, and food supplements.

The reasons for these gaps in insurance coverage are related to the characteristics of the private insurance system. Insurance coverage, after all, is marketed to employers, employees, and individuals based on what coverage they want and how high a premium they are willing to pay.

Historically, employers, employees, and individuals began purchasing insurance for unexpected high-cost medical needs requiring hospital care. They have only recently begun to purchase insurance for doctors office

care and for many of the lower cost and routine expenses required, for example, in well-child care. Few people are willing to buy insurance policies that cover homemaker services, day care, social services, and other services that seem peripheral to the high-cost medical care most feared by enrollees, and which may not be "health care" at all.

Second, insurers and purchasers of insurance tend not to insure services that seem elective in nature and apt to be used more by one person than another for reasons of personal preference. This contributes to the exclusion of a variety of services ranging from oral contraceptives to maternity care and mental health care (particularly psychoanalysis).

Third, insurers hesitate to cover services when they can't confidently predict how widely they will be used, what their total costs to the insurer will be, and how high the premium should be to cover them. Services that are hard for insurers to define exactly and that can be overutilized or "abused" by providers are also put in this category. Preventive services, counseling and guidance, eyeglasses, hearing aids, services by nonphysician providers, and other services are often therefore excluded or limited in arbitrary ways. These services are especially problematic in a competitive insurance market where premiums must be kept down and where there is little room for error.

Ways To Improve Comprehensiveness of Private Insurance

- The first step toward improving comprehensiveness of insurance benefits for children and pregnant women is to define standard services that are the most appropriate in terms of the health of the patient. An advisory council on child health in the Office of the Secretary of DHHS might perform this role if the council included experts in health care and insurance (for children and pregnant women) as well as representatives of the major purchasers of health care and insurance.

It is clear that these services for children and pregnant women will include many that are not likely to be sought out and purchased in the current insurance market, and not likely to be offered by private insurers. Since this definition of services is opposed to marketing and insuring systems, it should be established by government or an influential agency.

- A second, and more difficult step would be to convince or require the purchasers of insurance to pay the higher premiums required by these comprehensive benefits, including the costs of some socially important "elective" services that some enrollees know (or believe) they will personally never use. Three approaches are possible. First, employers, employees, and individuals could be required by government to purchase standard health insurance coverages and include critical services to children and pregnant women that otherwise might be omitted by employer or employee choice. So-called "mandated" national health insurance proposals include such a requirement. Second, the health insurers of the Nation could be required to include the critically needed services for children and pregnant women in any policy they sell. Third, government could offer employers, employees, and individuals

some incentive for voluntarily buying insurance that covers these services, through increased income tax deductions or credits to offset the cost of the portion of their total premium attributable to these services.

The major issue to be considered in selecting any of the above approaches, of course, is the extent to which a mandatory rather than a voluntary approach should be taken with regard to employers and emloyees and also with individuals who must purchase nongroup coverage. The mandatory approach would result in more children and pregnant women being covered for comprehensive services. It is possible, however, to increase the number who would purchase comprehensive coverage on a voluntary basis if the premiums for individuals and small groups were subsidized (as suggested below under universal coverage).

Further changes are required for those health services that insurers find difficult to cover even when purchasers must pay or are willing to pay for them. If private insurers were required to cover too many services whose costs they could not predict, for example, they would be hesitant to quote premiums and would possibly decline to sell the coverage in question. Ways must be found, for example, to define more specifically reimbursable counseling services and services provided by nonphysicians.

- A start might be made by requiring insurers to reimburse for one extended counseling session per pregnancy or to include such a session as part of specified periodic health assessments with additional sessions payable when certain diseases or conditions are identified, or when approved through a peer review process. The ultimate problem with insuring these services is cost, and part of the solution is to define the services specifically enough so their costs can be predicted. If government were to require that such defined services be insured, they might also establish a reinsurance mechanism to protect insurers against the possibility that government definitions are not enforceable.
- The private payment approach might also contribute to paying for services now provided by public health and community agencies. In fact, some of these services are provided on an individual basis with a provider rendering a specific service to a specific patient. Such services might be covered privately given better definition of the service and possible protection through reinsurance as mentioned above. An example is childhood immunizations, which might be covered as part of a regular health assessment office visit.

Many of these public health and community services, however, seem not reimbursable on an individual basis, and fundamentally outside the realm of private insurance as now conceived.

- As a means of financing even these services within the private payment system it would be possible to require insurers to contribute some portion of their premiums to government for use in schools or other government or voluntary agencies to support these activities. A premium tax or even a specific premium surcharge based on the number of children and pregnant women in a State or area, and other factors might be levied and earmarked for use by State or Federal Government for grants or

for payment of public providers to perform these services. It might be argued that there is a cost trade-off between such public health services and the costs of services that are insured (such as between fluoridation and costs of dental services) and that insurers could justifiably be required to contribute to the costs of the services.

Ways To Improve the Comprehensiveness of Medicaid, Government Grants, and Public Providers

The constraint imposed on private insurance benefits by the employer's and employee's unwillingness to pay larger premiums is parallel to the legislator's unwillingness to appropriate money and raise taxes for health care for low-income individuals. In addition, defining services covered by insurance and predicting their costs are also problems for Medicaid.

Like private insurance, Medicaid contributes little to financing public health and community services.

- The Medicaid coverage might be made consistent with the coverages required or encouraged under private insurance and also made to include additional services needed by children and pregnant women. Medicaid would also have to pay for these services at rates comparable to those paid by private insurers to ensure they are in fact provided to patients.
- The case could be made that Medicaid, like private insurers, should pay a surcharge of some type to support public health and community services that cannot be reimbursed effectively through insurance.
- Medicaid might also be changed to require that all States establish "spend-down" programs for children and pregnant women in order to ensure that the near-poor have at least some protection against catastrophic costs. States might be given the option and encouraged with increased Federal matching funds to substitute for this "spend-down" program a private insurance premium subsidy plan. This would give individuals below certain incomes a voucher equivalent to the worth of their "spend-down," to help pay the premiums for certified private insurance plans. This would encourage individuals to buy insurance that covers primary care rather than relying solely on the last-resort catastrophic protection of the "spend-down" program.

These changes in Medicaid would require increased Federal and/or State funding. Some relief might be given Medicaid if services to patients with both Medicaid coverage and private insurance coverage (with improvements as suggested above) are billed to the private insurance first; that is if private coverage were "primary." The added costs to the Medicaid program might either be assumed by the Federal Government or divided between the Federal and State governments by a matching formula. As with private insurance, the law might require States to expand Medicaid coverages as a condition of any Federal support for their Medicaid program, or it might make it a voluntary action on the part of the State government with an increased rate of Federal matching funds to serve as an incentive.

For *grantees and public providers* who operate basically under budgets set by government grants or appropriations, problems of defining coverages in order to determine premiums simply become management problems of identifying those people who can be hired and the services that can be provided within the budget. Tight public budgets in recent years have caused some of these programs to be as reticent about providing some services as the insurers, even though such programs were established and continue to offer their special populations a variety of services seldom conceived of in insurance policies.

More comprehensive private health insurance through one of the mechanisms suggested above would offer some support to public providers and health centers because they would be able to collect private insurance payments for more of their services to children and pregnant women who have private insurance coverage. In addition, if Medicaid were required to cover these same services and to offer a fairer reimbursement for services to children and pregnant women, these providers would be helped financially. However, many of the providers' patients have no private insurance and no Medicaid eligibility, and financing comprehensive services through these providers can only be accomplished if more of their patients are covered by private insurance, Medicaid, or the increase of Federal grants and/or public appropriations.

Universal Access: Insurance Coverage for All

One way of ensuring financial access to needed care for all children and pregnant women is to ensure that all have insurance coverage for comprehensive care at all points in their lives.

The existing private payment system leaves many children and pregnant women without coverage. Medicaid, government grant programs, and public provider programs are aimed primarily at these populations who are unable to obtain adequate insurance or pay for their health care out-of-pocket. These public programs do not reach all who need them, however. Both private and public systems could be improved in order to ensure more nearly universal insurance coverage for children and pregnant women.

According to the 1976 Household Interview Survey by the National Center for Health Statistics, some 22.8 million Americans had no private health insurance and no Medicaid coverage. A number of factors contribute to this lack of coverage.

Insurance coverage is most universal among employees of large firms or organizations who offer group health insurance that is far less costly to the individual than individually purchased insurance. The premium is lower for such plans, and usually the employer pays all or part of the premium on behalf of the employee. Smaller employers, however, especially those whose workers use more health care, will have to pay higher premiums for the same insurance and are more likely to offer no insurance or very limited coverage and to require that the employee pay more of the premiums. Some plans allow employees to "opt out" of such coverage, and most plans allow the employee's spouse and children to be covered or

not, according to the wishes of the employee. Where the employee pays a higher portion of the premium, he or she may elect "self only" coverage and exclude his or her spouse and children or may elect to have no coverage at all in order to save money.

Individuals who are part-time or seasonal employees, self-employed, unemployed, or employed where no group plan is offered must purchase individual policies from insurers unless they qualify for Medicare, Medicaid or another government program. Many such individuals find the costs of the premiums too high, and purchase no insurance at all. Some individuals who have a history of high use of health care may be refused insurance by insurers or offered the most limited coverage, or coverage exluding services most used in the past.

Some insurers, primarily the Blue Cross and Blue Shield plans, offer at least minimal health insurance protection to any individual or group who applies, frequently at a standard premium for all who enroll. This standard premium is subsidized from a portion of the premium charged to large favorable-risk employer groups. This practice, which provides insurance to many individuals and high-risk groups who otherwise could not obtain or afford coverage is a historic practice of some insurers and is increasingly being required of Blue Cross and Blue Shield insurers by State governments. However, it remains the case, even with this practice, that insurance coverage for individually insured persons and small and high-risk groups is narrower and has had higher premiums than that for larger groups, and that a higher proportion of persons in this category has no health insurance or only very limited insurance protection. On the average, the lower income individuals and their families who are less able to afford individual insurance, are also those less likely to be covered by employer group insurance where the cost to the individual is lower.

Ways To Improve the Universality of Private Insurance Coverage

- Insurers might be required by government to offer insurance for standard services for children and pregnant women at a reasonable premium to all individuals or groups who request it.

This would require insurers to subsidize in some way their rates for individuals and small groups. As indicated earlier, the current competition among private insurers for group enrollees makes it risky for them to add enough cost to the premiums of their large group subscribers to subsidize adequately the lower premiums that would make good coverage more affordable to individuals and small groups. However, if *all* insurers were required to subsidize comparably and all were required to enroll individuals and small groups regardless of risk, the problems of competitive disadvantage would be minimized.

The subsidy itself could be accomplished in a number of ways. All insurers could be required to collect a government-levied surcharge on all large-group businesses and use these surcharge dollars to offer a "below-cost" premium to individuals and small groups. The surcharge could be set to keep the premium down to 100 to 150 percent of a large-group premium. Alternatively, government could go even further, and require insurance companies to offer "community-rated" plans to all employers,

employees and individuals in a State or area. A "community rate" is the same for all people in the community area. Both of these approaches would eliminate or ease the much higher costs of insurance for individuals and small groups than for large groups and thereby make coverage more affordable for many.

The subsidy concept could be taken still further to reduce the cost of insurance premiums for low-income Americans to below that paid by higher income Americans. The new labor union national health insurance proposal includes the requirement that employers pay and insurers collect "wage-related premiums" such that the employer, employee, and individual pay the insurer a percentage of individual income rather than a flat premium. Under this approach, low-income Americans would pay lower premiums subsidized by the higher premiums of higher income Americans. Those who are eligible for welfare, Aid to Families with Dependent Children, Supplemental Security Income, or current Medicaid would have their private insurance premiums paid directly by State and Federal Government. Such extensive subsidies would make private insurance more affordable to low-income Americans and would make coverage of children and pregnant women more nearly universal.

Federal and State Government could make the private payment system cover more women and children by the following methods, in addition to these subsidized coverages:

- Providing tax incentives; requiring *all* employers, employees, and individuals to purchase certified insurance plans for children and pregnant women; or requiring all insurers to include the standard services in all policies sold. This is the same set of alternatives suggested above for making private insurance coverages more comprehensive.
- Operating State government insurance placement offices to help small groups and individuals select and enroll in private insurance plans or seek eligibility for Medicaid.
- Requiring employers and individuals to include their spouses and all their children in their own insurance plan.
- Requiring that group insurance coverage be extended to former employees and/or their families for 90 days after termination of employment, death, or divorce.
- Requiring insurers to allow their enrollees to convert their group health insurance to individual coverage when they leave an employer group.

How Medicaid, Public Providers and Grantees Can Improve Universality of Coverage

As long as health insurance is in any way contingent on employment, on actions by the individual to seek out and purchase coverage, or on eligibility for Medicaid based on income, people will fall into the cracks. An approach that requires employers, employees, and individuals to purchase insurance, and/or requires insurers to sell coverage that complies with standards such as those above will result in more universal and continuous coverage for middle-income Americans, but many, and

especially lower income individuals, will still not be able to afford coverage.

To provide for these individuals, Medicaid might be expanded in ways similar to those proposed in the Child Health Assurance Program (CHAP) by:

- Removing all categorical eligibility requirements for children and pregnant women
- Setting nationally uniform income eligibility standards at a percentage of the poverty level
- Removing all assets requirements for eligibility

The public providers and grantees should continue to provide services to the children and pregnant women who, despite improvements in the private payment systems and Medicaid, are still without insurance coverage even if only for a short period. To the extent that more children and pregnant women are insured under Medicaid and the private system, the burden on public providers, grantees, and voluntary providers would be lessened, and the costs of more of their services might be collectable from these public and private insurers.

- One approach to stabilizing the financing of these providers would be to require all insurers in the State or area to collect a government-levied surcharge that the State would contribute to public providers, grantees, and voluntary providers, because many of their uninsured patients are individuals who are caught in the gaps inevitable in an employer-group-based private insurance system.

Universal Access: Affordable Care for All

Affordable Out-of-Pocket Costs

Private payment for financing care at present results in children and pregnant women paying out-of-pocket the costs of some desirable services. Many of these out-of-pocket costs would disappear if the services covered were made more comprehensive and insurance coverage were made more universal through the approaches suggested above. Some major causes of out-of-pocket costs would remain, however, and the desirability of covering these costs for various services should be considered.

The major causes of out-of-pocket costs, given comprehensive and universal coverages are (1) "cost-sharing" provisions of public and private insurance programs, and (2) insurance payment practices that leave the patient liable for provider charges above or below set amounts or schedules.

Cost-sharing is the major source of out-of-pocket costs under comprehensive insurance programs. Deductibles and/or coinsurance are used almost universally in private insurance plans, and vary greatly in size from plan to plan. Some, for example, require the individual to pay a deductible of a fixed amount, such as $150, before the insurance pays anything, and then to pay a portion (or "coinsurance"), such as 25 percent, of all the costs over the deductible in a year.

The deductible mechanism seems especially likely to discourage some of the types of health services most used and needed by pregnant women and children, because it does not pay for services until the deductible amount is reached. This in fact means that most well-child care, and even routine acute care in the doctor's office, the cost of which seldom exceeds the usual $100–$150 deductible, is always paid out-of-pocket. It can also mean that the pregnant woman must pay the total cost of her first prenatal visits and only get insurance help later on. In both cases, the regular and early services that are most desirable for good health care are financed less well by the insurance.

Insurance plans also include a variety of other practices that result in higher out-of-pocket payments by patients. Private insurance programs often establish a specific amount they will pay for each specific service of physicians and other professional providers, and sometimes for hospital and other institutional services as well, and some insurers limit payment to "usual and customary" charges for professional providers.

In addition, insurance and Medicaid programs often place limits on the total amount they will pay for some types of services (e.g., mental health services) or on the number of certain services for which they will pay (e.g., one pair of glasses every two years). They may also establish claims reviews or "peer review" procedures to determine whether specific services provided to a patient were necessary or appropriate. In cases where these limits are exceeded or the review determines the services were not needed, the insurer or Medicaid may refuse to pay. These practices can leave the privately insured patient to pay out-of-pocket the portion of the physician or hospital charges not met by the insurance payment for covered services. In some cases these amounts can be very large.

These variations and limitations on insurance payments mean that the amount individuals must pay out-of-pocket for services varies enormously; consequently the financial disincentive varies for various services and different individuals. Ironically, lower income individuals end up paying more out-of-pocket on the average, and preventive services and primary care, generally high-priority concerns for pregnant women and children, are paid for mostly out-of-pocket.

If "affordability" is a necessary objective for making health care accessible to children and pregnant women, then these payment practices can constitute serious obstacles.

Ways to Improve Affordability of Out-of-Pocket Costs Under Private Health Insurance

It would be costly in several respects to eliminate cost-sharing practices such as deductibles and coinsurance from insurance. First, because most Americans each year never use their full deductible amount, most of the relatively small bills they pay for services are never processed by insurers. If insurers had to process and pay all or part of all of these small claims from all Americans, the administrative burden (and cost) would be greatly increased. Second, the premium would have to be greatly increased to cover these payments. Indeed it could as much as double the premium.

A number of steps could be taken, however, to make the cost more affordable.

- Insurers might be required to soften the discouraging effect of the deductible mechanism at the time care is sought by using the type of "health credit card" arrangements included in several recent national health insurance proposals. These would require insurers to process and pay the provider directly for all health claims for covered services using the patient's card and then bill the patient for any coinsurance or other liability on his part. This would both lessen the costs the patient would face and delay his payment (perhaps through 30-, 60-, or 90-day credit terms) until after the services are sought and rendered.
- Alternatively, insurers could be required to cover some designated services such as preventive services generally, and prenatal and well-child care specifically, without deductibles or without both deductibles and coinsurance.

Other insuring practices that increase out-of-pocket costs could also be changed by requiring that insurers:

- Set no limits on the number or cost of types of services offered to children and pregnant women except those specified in the defined standard services as suggested above.
- Negotiate acceptable fee schedules or other payment arrangements with providers for their services to children and pregnant women and provide their enrollees with lists of the providers who agree to these fees. This parallels the "participating provider" agreements negotiated by Blue Cross and Blue Shield plans. These negotiated agreements could also include a mutually agreeable process for the provider and insurer in which services later judged unnecessary would not be billed to the patient.
- Alternatively, insurers and providers could be required to negotiate such participating provider agreements to cover only those specific services to children and pregnant women for which any out-of-pocket payment by the patient unduly discourages access, such as preventive services generally and prenatal and well-child care in particular.

Ways Medicaid and Public Providers Can Improve the Affordability of Care

Many State Medicaid programs, like private insurers, also set very low fees for physicians and set limits on the amount, duration, and scope of services covered as a way of saving Federal and State revenues. Because providers must accept the Medicaid payment as payment in full if they treat a Medicaid-eligible person, many physicians simply refuse to take Medicaid patients. There is also evidence that some providers accept the lower fee but offer skimpier services in return.

In addition, the practice of many public and private voluntary providers of billing uninsured patients a variable fee based on their income is really also a form of cost-sharing, though more equitable perhaps than a flat

deductible or coinsurance unrelated to income. This practice raises a more troublesome issue, however. These varying fee schedules for people whose incomes make them ineligible for Medicaid are in fact a means of liberalizing health care for some people and providing an alternative to buying private health insurance. In some cases, such as facilities supported by the Maternal and Child Health Service, the Federal program seems to intend this liberalization for specific groups such as mothers and children. In other cases, programs seem to have been intended more to start up or demonstrate a system of health care, rather than to subsidize care on an ongoing basis. This seems to be, in fact, an area of unresolved public policy. Perhaps the chronic underfunding of these grant programs (which are small enough in the Federal budget to be overlooked) and of public providers reflects this ambiguity. There are, of course, always exceptions that prove the rule. In some cases, such as Denver, where the public provider is respected for efficiency and quality, the State and local government seems to have chosen purposely to improve the financial accessibility as well as the geographic accessibility of services to all citizens through the public provider system.

In dealing with these issues in Medicaid and among public providers and grantees, Medicaid might be changed in several ways:

- Require that no limits be set on amount, duration, and scope of services that are offered to children and pregnant women, except those specified in the defined standard services.
- Require Medicaid, like private insurers, to negotiate with providers fee schedules or other payment arrangements that the providers will accept as payment in full for their services to children and pregnant women and to provide Medicaid eligibles with lists of these providers.
- Alternatively, require that such "participating provider" agreements extend only to those services for which any out-of-pocket payment unduly limits access.

These changes would make Medicaid operate in a manner more nearly parallel to the private insurance system and give less reason for providers to discriminate against Medicaid patients.

Given the expanded private insurance coverages and expanded Medicaid coverage suggested above, one might argue that ideally there should be less need for grant programs to subsidize ongoing services, and for appropriations for the services of public providers. Since there will always be individuals without coverage and since grant programs and public providers are critical for resource development and in other roles (see below), the following changes might be considered:

- Grantees, public providers, and voluntary programs should charge the full costs for their services to all patients in order to encourage individuals to enroll in certified private insurance programs and subsidize costs of care only in cases where no insurance could be purchased, for example, among illegal aliens.
- Alternatively, if Medicaid and private insurance are not extensive enough to justify the above stringency, voluntary programs and public providers should be required or encouraged to use

graduated fee scales that impose no financial barrier to preventive and other needed services.

"Affordable" to Society

Given the rate of increase in health care costs in the United States and the growing concern of employers, labor unions, and government about these costs, it is important to consider how the various approaches to health care financing might affect the affordability of health care and health insurance for the institutions that purchase most of it. Indeed, if health insurance premiums or government expenditures rise to the point where programs are cut back, the result will be reduced insurance coverage and less affordable care for children and pregnant women.

The rising costs of health care and insurance are leading to a number of new and experimental approaches by private insurers in attempts to keep costs down. These range from programs of utilization and claims review to various innovative insurance plans. For example, in one widely discussed program by the SAFECO Insurance Co., the insurer contracts with a limited number of primary care physicians who provide basic care to all enrollees in the plan and in turn refer patients to any specialist that a particular health problem may require. The primary care physicians receive an end-of-year bonus from the insurance plan that decreases as more specialist and hospital services are used. Under this arrangement the enrollee agrees to a limited choice of doctors, the doctors are given an incentive to limit the use of higher cost specialist and hospital services, and a lower premium can be offered to the enrollee.

The most widespread variation on standard health insurance today is the health maintenance organization. In these organizations the incomes of doctors are greatly affected by whether the costs of health care of the enrollees are higher or lower than the premiums collected. Their incomes can be increased if fewer high-cost health services, such as hospital care, are used.

HMO enrollees are widely acknowledged to use fewer high-cost health services, especially hospital days. As a result, HMO's are able to offer broader insurance coverage than usual at the same premium. The HMO concept of prepaid capitation to providers for enrolled individuals seems especially applicable to health care for children and pregnant women.

- The government might identify "packages" of routine services appropriate for children and pregnant women and negotiate payment amounts for these packages. Insurers might then be required to pay a capitation fee covering these services to the provider of choice for each of its enrolled children or pregnant women and require reports to ensure services are provided. The pending CHAP proposal includes such a concept for Medicaid. By organizing their services most efficiently the primary care provider may lower costs, and the need to maintain his enrollment of capitated patients would help ensure quality care. Reinsurance arrangements might be established to protect providers from "adverse selection" in this type of enrollment-capitation approach.

In the face of rising costs, it is necessary to use the most cost-effective means of providing care, or at a minimum to be sure that the financing arrangements do not encourage less cost-effective care. For example, it may be that some routine screening immunizations can be provided at lower cost, and with nearly equal effectiveness, on a mass basis through schools or other community institutions than on an individual basis in the doctor's or dentist's office. It would be unfortunate to include these services in insurance plans in ways that encourage children and pregnant women to obtain these services in doctor's offices instead of through mass programs (or in addition to mass programs).

- Services that could be best provided on a public health basis might be identified by government and financed by matching government revenues and the private insurance surcharge revenues mentioned earlier, based on numbers of children and pregnant women insured. The State might use public providers or other agencies, for example, to operate a school-based system of preventive health services for children with referral arrangements to other providers. The potential for ensuring universal access to these services through such an approach is compelling in addition to its cost effectiveness.

  The regionalization of services also has the potential for improving cost effectiveness of services to children and pregnant women. Pediatric and maternity care are very amenable to regionalization ranging from multiple sites for selected routine screening and preventive services at one level to primary acute care and health assessment sites at another level, to general inpatient facilities and to a limited number of highly specialized inpatient facilities. A school-based public provider system as suggested above may well be most appropriate for the first level; the enrollment-capitation approach through HMO's, individual physicians, centers, or clinics described above may well be most appropriate for the second; and a classic fee-for-service reimbursement approach best for institutional care.
- State government and health planning agencies might be required to establish regional plans that offer these levels of services, and
- Insurers might be required to reimburse institutions only for services appropriate to their level of care as opposed to less specialized levels of care. They might further be required to reflect the level of care (and attendant overhead costs) in the reimbursement rates they negotiate with the providers. This could help solve difficult issues of fair reimbursement for both ambulatory and inpatient services for children and pregnant women by focusing on the specific costs of these patients separate from the rest of the population, and distinguishing between levels of care for them.

Any discussion of the long-term affordability of health insurance and health care for children and pregnant women could of course cover the entire range of cost containment, procompetitive, and other existing or proposed incentive and regulatory programs in the national health insurance debate. Such a discussion is beyond the focus of this paper. Moreover, implemen-

tation of many elements of these programs is best done for the entire population and not just children and pregnant women because they might preclude providers from caring for children and pregnant women in the interest of populations where there is less regulation, less red tape, or more customary ways of operating.

How Medicaid, Federal Grantees and Public Providers Can Improve the Affordability of Care

The Medicaid program includes all the problems and opportunities of private insurers with regard to affordable services. Medicaid regulations might well be changed to require State programs to operate in ways parallel to those proposed above for private insurers, including:

- Paying providers on a capitation basis for defined packages of services to children and pregnant women who are enrolling with them, as suggested in CHAP.
- Paying a surcharge based on the number of women and children enrolled to help finance "public health" services.
- Reimbursing only for services and/or providers approved in a State regionalization plan, and at rates appropriate to the level of services (and attendant overhead costs) approved in the plan. Federal grant programs under this approach might well be freed from paying for ongoing care, and required to invest more of their resources in demonstrating more cost-effective care or new patterns of organization and delivery consistent with regionalization.

Finally, using the surcharge and matching funds described above plus other State and Federal funds already used for these purposes, States might use public providers or contracts with private provider organizations (including maternal and child health centers, hospitals, or foundations for medical care) as mentioned above, to:

- Provide or coordinate services on a "public health" basis to all children and pregnant women in their area or school district using the schools, Head Start centers, or other locations that ensure maximum cost effectiveness and widest utilization of services.

Universal Access: Provider Availability

There is little in the traditional private insurance system to encourage providers of health care to go where they are most needed. In fact, by using usual and customary fees to pay physicians, private insurers reinforce the historical pattern of lower fees and incomes of physicians in rural practice and perhaps increase the disincentives to physicians to move to these underserved areas. Private insurers will not offer higher fees or other enticements to physicians or other providers to offer services where they are most needed. The fact is that private insurers largely do not see it as their responsibility to fill this function. Both private insurance and out-of-pocket payments contribute heavily to the capital formation needed to expand or introduce new health services. Provider charges and budgets

include funds for repayment of loans and mortgages and accumulation of capital for further expansions. Private payments contribute to such expansion, but little in the private payment system at present encourages the use of these funds for services in areas that need them most.

There are some relatively recent exceptions to this rule, however. Health maintenance organizations, which are private insurance plans, contract with their enrollees to provide not just payment for covered services but health services themselves. HMO's do assume a responsibility for providing reasonable access to their services for their enrollees and, in fact would and do lose their enrollees if they fail to meet this responsibility. Some HMO's have been able to make care accessible in inner city areas, and independent practice association or foundation-type HMO's have promise for making care accessible in rural areas. The latter coordinate and finance care of physicians working out of their own offices through central referral, inpatient and administrative services.

In addition, while private insurers do little to attract providers to underserved areas, they are becoming increasingly involved in efforts by health planning agencies to limit the provision of more services in areas where they are not needed. Some private insurers, notably Blue Cross and Blue Shield plans, negotiate independently with hospitals over proposed new services and the level of payment to these hospitals. But hospitals are free in these situations to reject the insurer's proposals and bill patients insured by these carriers directly for all their charges, especially if the insurer covers only a small percentage of the hospital's patients. These unfortunate patients or their health insurance group may then enroll with a different insurer in order to "deal" with the hospital. This places severe limits on the pressure the insurer can exert. For this and other reasons, insurers cannot be expected to refuse payment to providers whose services are not consistent with State or local health planning, as Medicare and Medicaid can, unless the law requires it.

Medicaid (and Medicare) operates in many respects like private insurers such as Blue Cross and Blue Shield except that they are in a position to bargain more rigorously with hospitals and other institutional providers. Medicare and Medicaid can and do refuse payment for costs of unnecessary services and, by law, they will not pay for services inconsistent with State and local health planning activities.

Medicare and Medicaid also have authority to pay HMO's to enroll their beneficiaries and to experiment with financing arrangements that might encourage providers to offer better access to their beneficiaries.

How Public Providers and Grantees Can Help Improve Availability

Government grants and public provider financing are the most direct responses to access problems. Federal and State Governments give grants and States and local governments operate health care facilities in inner city and rural areas where capital formation and investment from the private payment system is difficult or impossible.

The public providers and some grantees serve as the last resort both for people who have little or no ability to pay and for people who simply have poor access (for geographic, cultural or other reasons) to other providers.

In fact, in many cities the public hospital is the primary source of emergency room and after-hours care for the entire population. In this latter role, the public provider, like the grant system, fills gaps where capital formation and investment from the private payment system do not exist and logically should collect from patients (or their insurer) the full cost of their services.

Given the expansions in private insurance and Medicaid coverage suggested in this paper, government might:

- Specify as a major responsibility of public providers and grant programs the startup of new health care resources or the maintenance of services not otherwise available, rather than subsidize services on an ongoing basis that are covered under private insurance or Medicaid.
- Require that charges be collected from all patients (or their private insurers or Medicaid) except in extreme cases (such as illegal aliens) where insurance is not available.

Appropriate Utilization of Care by Everyone

Even if all children and pregnant women knew they could afford all appropriate health services and had physical access to these services many still might not make use of the services they or their children need. At present, with such mixed and fragmented systems of financing, many fail to use services appropriately. Among the reasons are:

- Reimbursement of providers for various services with fees inappropriate to the importance of the services
- Lack of information or understanding about desirable health care
- Embarrassment or fear of the health care system such as that experienced by adolescents needing prenatal care or family planning counseling
- Dislike of questions regarding income and ability to pay and embarrassment at having to accept free or reduced cost care
- Lack of transportation
- Refusal or inability to take time off during working hours for long or expensive trips to providers or long waits for services with no advance telephone consultation as to whether it is necessary
- Frustration or confusion from having to visit multiple clinics or offices in order to get basic needed services
- Failure to understand and follow through on referrals
- Lack of concern or motivation by parents or guardians for the welfare of their children

Ways the Private Payment Approach and Medicaid Might Improve Appropriate Utilization

- Insurers and Medicaid that are required to contract with providers to enroll and care for children and pregnant women on a capitation basis, might include in the contracts:
  - —Both primary care services and coordination and followup on referral care

—Convenient office hours
—Telephone availability for consultation and appointment making
—Outreach services to children and pregnant women by "public health" providers in schools or elsewhere which encourage use of preventive or other needed services
—Payment for the costs of nurses and others needed to help physicians or clinics provide these services

An HMO, of course, would act as both insurer and provider in this context and should meet these same requirements.

- All private insurers and Medicaid programs might be required to provide pregnant women and parents of children information for enrolling with a provider in their area and ensuring that either enrollment occurs or notice is sent to the State health department for followup to ensure assignment to the appropriate health program.
- It might be required that fees allowable by insurers to enrolling providers and others for selected services reflect the importance of these services to health in order to encourage providers to offer the most appropriate services.
- Private insurers and Medicaid could be required to see that critical preventive services were furnished by all enrolling providers and to call to the attention of the provider and patient any services that are potentially overdue. Insurers might be required to submit a record of critical preventive services provided to the patient and provider yearly, or submit notice of changes in insurance coverage of a particular individual due to change of jobs or other factors.
- Both Medicaid and private insurance could be required to pay providers any deductibles or coinsurance through the "health credit card" mechanism described earlier. In this way, any financial risk related to care would accrue to the insurer or government rather than to the provider, and the need for inquiries about patient income by the provider would be mitigated. The disincentives attendant to income determination at the time care is sought would also be ensured by extending Medicaid and private insurance coverage to more children and women as suggested earlier. This would mean that income determination occurs only at the time Medicaid eligibility is established and not at the time health services are required.

Ways Public Providers and Grantees Might Improve Appropriate Utilization

Appropriate provision and utilization of services would require that (1) adequate providers agree to participate with private insurers and Medicaid, (2) all children and pregnant women are brought into early contact with providers, (3) providers reach out to patients who otherwise might not follow through on needed care (especially children), and (4) other relevant community services be coordinated with provider efforts to improve the health of pregnant women and children.

Provider contracts with insurers and Medicaid to treat patients on an enrollment-capitation basis as described above should help provide some of the above services and also serve as coordinating mechanisms, but there may not be enough providers available in some areas who are willing to enter such contracts. Those who do are likely to find that more extensive outreach and case-finding is required for some cases than can be organized or financed under enrollment-capitation agreements, and that some community services such as housing and sanitation are difficult to coordinate under such agreements.

Under such a system:

- All public providers and grantees might be required to enter into enrollment-capitation agreements with Medicaid and private insurers in their area.
- States might contract with public providers, grantees, or other private providers (such as hospitals or foundations), as recommended above, to provide "public health" services to all children and pregnant women, and in addition:
  - —Operate a health care registration system to identify all children and pregnant women in each area or school district
  - —Assist each child and pregnant woman to enroll with a provider under their insurance plan or Medicaid and, when necessary, direct them to the State office that can assist them with the purchase of insurance coverage
  - —Conduct outreach, case-finding, and monitoring programs to register and enroll patients and to ensure followup on care prescribed by enrolling providers in problem cases
  - —Coordinate provision of other community services (such as housing, sanitation, food and nutrition, and transportation) with care given by enrolling providers

THE EFFECT OF ECONOMIC AND POLITICAL CLIMATE ON POLICY CHOICES

The possible changes in the four approaches to financing health care for children and pregnant women imply the need to make a number of basic policy choices. Some policy issues are so basic that without resolving them one cannot develop a coherent set of possible changes.

Role of Private Versus Public Sectors

The basic economic and political philosophy of the United States requires that the private sector be used to the greatest extent possible in the attainment of national policy goals, and that government's role be limited to the provision of incentives and regulation that best enable the private sector to function and the provision of public services and funds only in those instances when the private sector is unable to provide them.

For government to do more than this in health financing care for children and pregnant women would require more evidence of failure of the private sector and more willingness on the part of taxpayers to give

government the funds and authority required than exists at present or is likely to exist for many years. For this reason, the options do not include a government financed and administered system of care for children and pregnant women either through a massive Federal grant program or a Federal health insurance program like Medicare.

Public Versus Private Financing

Given the current economic problems which are apt to continue for some time it is apparent that greatly increased Federal or State expenditures from general revenues are unlikely. For this reason, every effort should be made to encourage private employers and individuals to offer more comprehensive coverage to more children and pregnant women, paid for by private insurance premiums. For necessary public expenditures, it seems more likely that a special tax might be levied earmarked for the specific purposes of health care to children and pregnant women; and it seems most likely such a tax such as the suggested surcharge could be levied if it had some clear relationship to problems in the private insurance system.

Voluntary Versus Mandatory Participation of Providers, Insurers, and Purchasers of Insurance

Legislators in the United States traditionally have resisted requiring individuals or institutions to protect their own welfare or even to protect the welfare of others, unless the harm to others is grave, and there is evidence the steps will not be taken voluntarily. In the case of health insurance and health care, evidence seems to indicate that basic insurance is offered and purchased in our society when the incentives are right (as with employee groups), and that providers participate when payments are reasonable. It seems possible at least that insurance coverage of children and pregnant women could be improved by limited government regulation of insurance coverages of children and pregnant women to ensure availability of basic coverage for everyone, plus tax incentives to employers, employees and individuals to purchase insurance, plus improvements in Medicaid, public provider and grantee programs. One could argue, in fact, that the critical issue is one of costs, in which case a largely voluntary system might work if the government is willing to offer the incentives and subsidies needed to make it work. As long as these possibilities exist, the legislators are far more likely to support largely voluntary systems than to expand government regulation at this politically sensitive time.

Federal Versus State Government Roles

Regulation of insurance and the organization of many elements of comprehensive health care for children and pregnant women traditionally

have been largely State activities, with Federal funding assistance and guidelines. The major exception has been direct Federal grants for demonstration projects. While this has led to wide variations in the level of services provided, it clearly reflects variations in political willingness in the States to legislate in these areas and reticence in the Federal Government to assume the costs and political burden of these functions. At present there is considerable activity in State legislatures regarding health insurance regulation, and promise of considerable innovation. Moreover, the Federal Government at this time seems politically less likely than ever to extend its administrative reach further into what are traditionally State and local affairs. It therefore is most practical to encourage States, with increased Federal support, to mount programs to improve financing of health care for children in the belief that, in time, successful programs will be replicated in all or most States.

Use of Insurance Reimbursement of Providers Versus Grant or Other Approaches

Insurance (both private and public) has traditionally paid providers in ways that are widely acknowledged to do little to facilitate many aspects of desirable health care (such as fee-for-service) and perhaps to discourage it. On the other hand, many would argue that government grant programs pay for care in ways that lead to desirable care if the grant is large enough. There seems no clear evidence that these methods of payment are unchangeable however, and both private and public insurers are developing and implementing systems of paying for care (such as capitation) that seem more conducive to better care. To abandon insurance in favor of a grant approach for paying for care in most cases seems to fly in the face of both developing potentials in insurance practices and the political possibility of raising Federal, State or local tax revenues to finance a massive grant program.

Phased Improvements Versus Comprehensive Plans

To describe a comprehensive program, even one enacted in steps over a defined period of time, carries with it two major political and economic liabilities. First, by suggesting the final goal at the outset it presumes that the political objective is clearly known from the outset and that earlier steps will prove inadequate. This is untrue both politically and on the basis of present knowledge of how best to finance health care and, above all, it ensures that every institution that will or *might* be adversely affected at some intermediate step of the process will mobilize politically against the very first step. Second, this approach makes the economic costs of the entire program a matter of debate at the outset. The economics and politics of the times argue for practical steps that can be taken without unduly prejudicing the ultimate outcome.

Improvements in Health Care for Children and Pregnant Women Versus Health Care for the Entire Population

Federal, State and local governments have histories of special programs for financing health care for children and pregnant women and continue to entertain proposals for strengthening these programs. Politically and economically such programs might be more possible than programs for the whole population and need not wait for such programs for the whole population. On the other hand, government can only go so far in making special demands of providers, employers, and individuals with regard to children and pregnant women before it creates disincentives. For example, providers might elect to devote less effort to these populations and more to patients with whom they have less red tape and interference with their practice. Likewise, small employers who offer no or limited coverage to their employees might be discouraged from buying any or keeping what they have, if the cost of insurance is unduly increased by requirements that children and pregnant women be covered. These constraints in programs dealing with only children and pregnant women need to be carefully considered in decisions regarding subsidies for insurance premiums and mandatory and voluntary requirements.

Given these constraints, it should be clear that many forms of cost control and cost containment based on government regulation and/or national or area budgeting of programs for children and pregnant women only (as it is under Medicare) would be nearly impossible to implement without the risk of diminishing the quality and quantity of services available to these populations.

A SYSTEM OF SUGGESTED CHANGES IN FINANCING THAT MIGHT LEAD TO MORE DESIRABLE HEALTH CARE FOR CHILDREN AND PREGNANT WOMEN

The changes outlined here are organized around three general areas: (1) modification in the present private insurance system designed to improve health care for pregnant women and children, (2) improving Medicaid as an insurer of health services for poor women and children, and (3) giving State governments substantial new roles in using public providers, grantees, and others in the planning and startup of community resources for care, in providing selective preventive and related services, and in ensuring and coordinating appropriate utilization of care.

The possible changes reflect the political and economic factors discussed previously. The objective is the establishment of an expanded government financing role only when private insurers and providers are unable or unlikely to meet the need. In some cases, alternatives to a suggested change are described that might better solve particular problems. In each case, these alternatives seem to be either more costly or politically difficult and less possible to obtain through legislation.

The options are not meant to be definitive and complete, but merely outlines of possible approaches in an effort to stimulate policy choices. Proposals that build on these suggested changes would need further clarification before they could serve as the basis for drafting legislation or regulations.

I. Strengthening the Existing Private Payment System

The private third-party payment systems can be improved to provide comprehensive care, universal access and appropriate use of services by children and pregnant women by the following changes:

A. All health insurance plans might be required to offer as an option or to actually include a *standard* set of services for children and pregnant women established by law, and changes made based on continuing review by the Secretary of Health and Human Services and recommendations of an Advisory Council on Health Insurance for Children and Pregnant Women.

1. The standard set of services would include specified high-priority preventive (such as family planning), prenatal, and postnatal services and specified well-child care as *mandatory minimums* in every insurance policy sold and would have to be covered without deductibles.
2. The standard set of services would include one or more *optional voluntary* insurance coverages that would be logical extensions of the minimums that every insurer must offer with every policy, but that the purchaser of insurance can elect to purchase or not.
3. The standard set of services would specify public health, preventive, and other services that could be best organized and offered to *all* children and pregnant women by public providers and/or under Federal and State grants to other providers funded in part by an insurance surcharge as described below.
4. Which services were mandatory, which were voluntary, and which were public health services would be decided by the advisory council based on the relative importance of the services to health, their relative cost, their insurability, and other policy considerations (e.g., should men who purchase "self only" insurance be required to pay a premium contribution toward the child and pregnant women services?).
5. The advisory council would also specify any services, for purposes of encouraging appropriate provision and utilization, that should only be covered when provided in certain settings, or by certain types of providers, or in conjunction with other services, or at certain payment rates compared to rates for other services relative to the importance of the service.

6. The advisory council would also review and suggest rulings on the "allowability" of various insurance coverage practices that affected services, such as exclusion of preexisting conditions or waiting periods for maternity benefits.
7. A Federal reinsurance program could be established to protect insurers from unexpectedly high costs of mandatory services that the advisory council considered difficult to insure because of unpredictability of use of such services, or other factors.

B. The *premiums* for all group insurance sold and the cost of self-insured coverage might include a surcharge that would be set, collected, and administered by State governments within Federal guidelines. These revenues would be matched by Federal contributions that subsumed all or relevant parts of various existing categorical grant programs to the extent the State adhered to guidelines concerning use of the funds in each of these categorical areas. If the guidelines were not adhered to, that categorical area for that State could be administered federally.

The State would utilize these revenues for the following purposes:

1. Funding of public health, preventive, or other services judged by the advisory council to be best organized and offered to all children and pregnant women by public providers and/or State and Federal grants (e.g., preventive dental services in schools). This would require insurers to contribute to the costs of services that could not be "insured" in the classic sense but whose use would affect both health status and the use of insured services.
2. Funding, planning, *start-up*, and *initial operation grants* for primary health care services to children and pregnant women in underserved areas (or for types of services such as ambulatory mental health care). The advisory council and Secretary would judge where adequate private capital formation for such investment was unlikely. These funds could be matched by the Federal Government if the total was used by the State pursuant to the Secretary's guidelines. This would require insurers to contribute to the accessibility of the services they insured.
3. *Subsidy* of private premiums for children and pregnant women who were insured as individuals or in small groups, in order to bring the premium to an affordable level as determined by the State. This would require insurers, HMO's and self-insurers to contribute to the cost of insurance for people who, because of policy, competitive experience rating, and other insurance practices, were unable to afford insurance. Requiring all the good risks to help subsidize the poorer risks seems a reasonable solution to the problem. *As an alternative*, the surcharge would be set, collected and matched by the Federal Government, but

administered through categorical grant programs from the Federal level for purposes 1 and 2 above. States might be granted a percentage of the surcharge plus matching funds from their area for accomplishing purpose 3 above.

C. All private health insurers and HMO's might be required to *offer to all individuals and groups who apply* a general insurance policy (or policies) acceptable to the State government, covering any individual or member of the family which would incorporate the standard *benefits* for children and pregnant women and would be sold at a premium the State considers affordable. This would require that some form of insurance that covered everyone be realistically available for purchase by anyone who desired it and to which standard benefits for children and pregnant women would have to be attached.
   1. The portion of the premium for this general insurance that was attributable to the required standard services for children and pregnant women would be subsidized by the premium surcharge described above.
   2. States might be encouraged to extend the premium surcharge mechanism to subsidize the premiums for services to others than just children and pregnant women under this general insurance, in order to better ensure that individuals and small groups purchased policies to which standard services for children and pregnant women would be attached. In States that do this, the State might be encouraged by increased Federal matching funds to enroll their cash-assistance eligibles in these private general plans using Medicaid funds to pay the private premiums and offering residual Medicaid benefits under separate arrangements. The intent would be to move toward integrating those eligible for Medicaid into the private system in such a way that providers would have no reason to distinguish between them and others.

D. To encourage employers, employees, and individuals to purchase health insurance, and to add the voluntary standard benefits as well as those mandated for children and pregnant women, the law could: (a) offer Federal tax credits or other tax incentives for the premiums for the insurance and (b) support public education programs. Employers could further be required at the least to arrange for voluntary group enrollment of their employees, including part-time employees, at the employees' expense, in order to give more people access to lower premiums and easier enrollment procedures. *An alternative would be* not only to require that standard services be included in all insurance sold but that all employers *be required to purchase* the insurance for their employees. This would result in many small employers purchasing insurance who otherwise would elect to offer no coverage rather than face the increased cost of adding the new standard services. *A still further step would be* to require not only that insurers offer State approved policies and rates to

individuals and small groups, but that *all persons* with children not eligible for Medicaid must purchase some coverage.

E. All health insurance sold, and self-insurance, might be required to cover any dependent women or children (from time of birth) of the enrollee not covered by other policies and would have to extend this coverage without further premium payment 3 to 6 months after termination of employment, divorce or separation, or death, or until covered by a new policy.

F. All health insurers, HMO's and self-insurers (including Medicaid) might be required to make good faith efforts to negotiate enrollment agreements with providers, using the approaches below, under which children and pregnant women would be enrolled with a provider of the enrollee's choice. This should better ensure continuity of care and appropriate provision and use of care generally, while establishing incentives for providers to emphasize more primary care and less high-cost speciality care. Some of these proposals are in CHAP for providers reimbursed by Medicaid.

1. Under one type of agreement, participating providers would have to agree to everything in paragraph 4 below, and would be paid on a negotiated fee-for-service basis under which the insurer's payment would be accepted as payment in full and no further billing could be made to the enrollee.
2. Under a second type of agreement, participating providers would agree to everything in paragraph 4 below, and would be paid on a negotiated "capitation" basis for the mandated standard services plus all possible standard voluntary services to which the provider and insurer could agree. Services not agreed to in the capitation would be paid for on a fee-for-service basis as above.
3. The insurers, self-insurers, and HMO's would be required to publicize a list of these "enrolling providers," and make it available at the time of selling insurance coverage so consumers could evaluate the list as a factor in their selection of insurance plans and could share the cost-benefit advantage of using participating providers.
4. "Enrollment" agreements with providers would include:
   a. offering at least all standard mandated services and all voluntary standard services that could be negotiated with the provider,
   b. coordinating and following up on referrals,
   c. ensuring accessible sites and convenient office hours,
   d. ensuring telephone availability, and
   e. reaching out to bring in referrals from schools or other public provider programs.
5. The "capitation" and fee-schedules negotiated with providers would include costs of nurses and others whom the participating provider employs to help provide these services.

6. Where the State government determines that an insurer, self-insurer or HMO cannot negotiate such agreements with adequate numbers of providers, the insurer would be allowed to pay for services under other arrangements. Where fee-for-service payment is used, the insurer would be required to pay the provider's charges in full and collect noncovered costs from the enrollee under a 90-day credit arrangement.

G. Insurers might also be required to negotiate participating provider agreements on a fee-for-service or other basis with classes of providers named by the advisory committee as those most often used by children and pregnant women on referral from enrolling providers. These agreements would provide that the insurer's payment be accepted as payment in full. Because of the complexity and burden of requiring such agreements by all insurers with *all* types of providers, only those most used might be required.

H. All insurers, self-insurers, and HMO's might be required to reimburse both providers with whom enrollment agreements exist and others (who either refuse such agreements or are offering secondary or tertiary referral care not included in such agreements) only for services and/or facilities approved by the State plan for regionalization of health services to children and pregnant women; and they might also be required to reimburse providers for specific services consistent with the guideline of the advisory council regarding the appropriate rate relative to the importance of the service and consistent with the level of care (and associated overhead) approved for the provider in the regionalization plan. These requirements, plus the general focus of the program on children, might create a framework in which current inequities in payment for many children's services can be corrected.

I. State government might be left free (consistent with the intentions of the requirements) to extend or add to these Federal requirements for insurers, self-insurers and HMO's, regarding mandated versus voluntary services, the size and uses of the premium surcharge, the benefits of individual and small-group policies, and other matters.

II. Improving the Medicaid System

The Medicaid system can be improved to increase comprehensive care, universal access, and appropriate use of services by children and pregnant women by the following changes:

A. Medicaid might be amended to require States to cover both mandatory and voluntary standard benefits without deductibles or coinsurance (similar to the CHAP proposal) and to reimburse providers at rates comparable to those used by private insurers

without limits on amount, duration, and scope except as set by the advisory council.

B. Medicaid eligibility requirements might be changed to require States to include *all* children, (through age 18, or as long as they are full-time students, or disabled and dependent, and any others covered under Title V of the Social Security Act), and *all* pregnant women who meet a uniform income standard (e.g., 80 percent of the poverty level), disregarding assets and categorical requirements. (Some of these changes are proposed in CHAP.)

C. Medicaid might require that "spend-down" programs for children and pregnant women be implemented in every State as a last resort catastrophic coverage for those without coverage. *As an alternative,* States might be required to implement "spend-down" programs for every citizen.

D. The law might require each State, as the insurer of last resort under the "spend-down" program, to operate an insurance placement program for women of child-bearing age and children, and to assist them in selecting and being placed with an insurer. At its option, the State could be given increased Federal matching funds to subsidize the premium of the insurance selected through this placement program at a rate equivalent to the actuarial value of the "spend-down" they would offer such individuals. In this way Medicaid funds could be used to encourage private purchase of insurance for primary care (the standard mandated services) rather than to offer the last-resort catastrophic-only coverage represented in the "spend-down" programs. This option would also constitute a step toward enrolling low-income people (who might otherwise choose to purhase no insurance and rely on public providers and the Medicaid spend-down) in the same private plans as higher income people and ensure that providers have no reason to distinguish between them and others.

E. Medicaid programs might be required to make a pro rata contribution, based on the number of women and children they cover, to be used by the State government for the same purposes as the insurance surcharge.

F. Medicaid might be required to continue coverage of pregnant women and children, once it is established, for some period after they are otherwise ineligible, or until they are covered by a qualified policy. CHAP includes such provisions.

G. Medicaid, like private insurers, might be required to negotiate provider agreements as described above for "enrolling" pregnant women and children.

H. Medicaid programs, like private insurers, might be required to pay for only approved services in approved facilities. The State agency responsible for regionalization of health services to pregnant women and children would determine which services are approved.

I. An alternative would be to take the above steps regarding Medicaid, but "federalize" the Medicaid program so that

administration of all the above activities was through the Federal Government.

III. Improving the Public Provider-Grantee System

A. Recipients of future Federal and Federal-State grants for health services, and all public providers who receive Federal funds might be required to:
   1. Negotiate "enrollment agreements" and "participating provider agreements" with Medicaid and private insurers, HMO's, and self-insurers who insure a significant number of children and pregnant women in their area
   2. Offer such services as they are qualified to offer to all pregnant women and children who seek services
   3. Collect for all covered services from Medicaid and private insurers as broadened by this proposal in accordance with the rule for enrolling and/or participating providers

B. These same providers might be required to charge full fees to children and pregnant women who are not insured, and also to offer payment terms for noninsured expenses at least as generous as the 90-day credit arrangement described above for the case of certain privately insured services. The intent would be to discourage lower income individuals who are not eligible for Medicaid from relying on public providers and reduced charges rather than purchasing adequate health insurance. *An alternative* to the full-fee-with-credit approach would be to require all employers, employees, and all individuals to purchase some insurance that included the standard benefits for children and pregnant women.

C. State governments might perform a number of health care provision and resource development functions within Federal guidelines using the private premium surcharge, Medicaid contributions, and Federal matching funds described above.
   1. Establish administrative, case-finding and case-management mechanisms in schools or other settings (such as those funded under Title XX of the Social Security Act) for providing or coordinating public health and preventive services to all children and pregnant women in their area or district; ensuring that all children and pregnant women in their area or district are "enrolled" or put in touch with providers; making and following-up on referrals to providers; and working with providers to coordinate the patients' use of other community services as needed.
   2. Establish means to provide standard services to institutionalized or other children and pregnant women who are constrained from enrolling or obtaining needed care and would remain unreached without state initiative.

3. Fund planning, startup, and initial operation of needed primary health care services.
4. Maintain data systems based on input from the school or other public health services providers for purposes of patient followup and assistance to the family in coordination of services and for epidemiologic and other research programs.
5. Establish and maintain a plan for regionalization of services to children and pregnant women.

D. States might be offered Federal matching funds for the administrative activities required to set surcharge rates, operate insurance placement services, and ensure compliance with this plan and other requirements of this program by insurers, providers and others affected by this program.

E. The Federal Government might maintain grant and experimental authorities such as those under Titles V, XVIII and XIX of the Social Security Act in the Public Health Service, and in the Developmental Disabilities and Community Health Centers Acts for supporting experiments and demonstration projects related to the provision of health care to children and pregnant women, that are more comprehensive, more universally accessible, and more appropriately provided and utilized.

REFERENCES

(1) Gibson, R. M. "National Health Expenditures, 1978." *Health Care Financing Review*, U.S. Department of Health, Education, and Welfare, Health Care Financing Administration, Summer 1979.

(2) National Center for Health Statistics. *Health United States, 1979.* DHEW Publication No. (PHS) 80-1232. Washington, D.C.: U.S. Government Printing Office, 1980.

THE ORGANIZATION AND FINANCING OF CHILD HEALTH SERVICES: OPTIONS FOR POLICY

by
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INTRODUCTION[2]

Four major and often conflicting goals of child health policy, disease prevention, comprehensive and continuous health care, access and appropriate utilization of services, and adequate information systems, have all been promoted in public sector child health programs. A fifth goal, to avoid fragmentation of health care services, derives from the conflicts inherent in the preceding goals. This paper is a review of the literature to see how the organization and financing of child health services promote or hinder these goals.[3] In the light of these findings, options for child health policy are presented.

THE STATE OF RESEARCH IN CHILD HEALTH

Current research has had considerable limitations in evaluating the effect of organization and financing on child health service goals. Although there are many studies on prevention, comprehensive care, access, and information systems, few deal with the organizational issues in

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[2]I wish to thank Ellen Fischer for her excellent assistance in reviewing the literature and editing an earlier draft of this manuscript.

[3]The question of whether child health services actually improve the health of children has, for the most part, been avoided. The effect of health services on health will ultimately have to be evaluated, but because current relevant data are still incomplete. It is necessary to review the processes themselves rather than the outcomes (except for mortality data).

the delivery of child health services. Furthermore, what data are available are uneven.

Empirical studies on child health services were searched with particular attention to the literature since 1970 on the Social Security Act Title V and XIX programs, Maternal and Child Health and Crippled Children's Services formula grant programs (CCS), Maternal and Infant Care (MIC), Children and Youth (C&Y) project grant programs, Early Periodic Screening, Diagnosis and Treatment Programs (EPSDT), Neighborhood Health Center programs (NHC), and regionalized perinatal care programs.

There are four major problems in using presently available research to evaluate the effect of organization and financing on child health service goals. The first is that although the literature is extensive, many of the studies have methodological problems that make it difficult, if not dangerous, to generalize from the study populations to a larger population. In this review I have tended to ignore those studies which may have interesting findings, and which may even be frequently cited, but suffer from methodological problems.

The second difficulty derives from the scope of the studies. Most studies are of a particular project, health center, ambulatory care center, or physician's practice. The studies are targeted to a limited geographic area and often do not relate specifically to a Government program or policy. Larger area studies, for example, of a State's crippled children's program are relatively rare. The Title V maternal and child health and crippled children's programs in particular have had few objective evaluations.

A third problem stems from the inability of most studies to control other variables in assessing the effect of organization. A few studies overcome this problem by comparing simultaneously several different types of organizations serving similar populations, but these studies run the danger of being micro-studies of idiosyncratic groups or methods of organization. When studies apply to a total population, the findings may not be generalizable to other populations.

A final problem is the confounding of methods of financing and methods of organization. Neighborhood health centers may receive financial support from several Federal agencies such as the Bureau of Community Health Services (BCHS) and Medicaid in the Department of Health and Human Services, from the Supplemental Food Program for Women, Infants and Children (WIC) in the Department of Agriculture, and from State agencies through construction grants. When Title V-supported State health departments report the number of children screened in a program, they do not usually indicate that some of the program funds may come from Medicaid (EPSDT). Therefore, evaluations rarely distinguish the effects of financing itself.

In my review of the literature I have found no easy way to deal with this confounding of organizational and financial structures. In addition to complicating evaluations, the multiplicity of funding sources is responsible for much fragmentation in child health care.

It appears that policymakers, despite Government intervention in child health for over 40 years, have very little of the information needed to make intelligent decisions. This may be viewed as a failure of the research

establishment to provide usable knowledge. However, the burden should be shared equally by program planners and administrators who have neglected to commission such studies. Clearly, the evaluation of child health programs has been insufficient to date. Better and more complete evaluations are needed to assess how organization and financing affect the delivery of child health services.

THE IMPACT OF ORGANIZATION AND FINANCING ON CHILD HEALTH POLICY GOALS

Prevention

Prevention first appeared as a goal in the amendments to the Social Security Act of 1935. Under the mandate of "promoting the health of mothers and children" (Title V, Section 501), States received funds which enabled them to establish maternity and child health services which included well-child clinics. Section 502 of the same law required that States carry out secondary prevention through identifying children who were crippled or suffering from diseases which might result in handicapping conditions (the Crippled Children's Services—CCS). In 1963 Federal Government participation in the prevention of illness was expanded when Congress further amended the Social Security Act to provide project grants for high-risk mothers and children (MIC and C&Y projects). The clearest and most recent statement of Federal concern about preventive services for children appears in the 1967 Child Health Amendments to both Title V and Title XIX (Medicaid) that provides for "such early and periodic screening, diagnosis and treatment as may be necessary for the promotion of health and the prevention of disease" (Section 1901).

Prevention has also become an explicit goal of many States such as Minnesota (*1*). In all Federal and State laws both primary prevention, the prevention of disease, and secondary prevention, the early detection of disease, have been emphasized. State and local health agencies have proved to be the most effective groups in promoting preventive services even though they have reached only limited populations. Other provider groups have been less involved in the provision of such services often because they had other goals and interests.

State and Local Health Departments

State health programs have provided a wide variety of services, but often with only limited coverage. In most States only a small proportion of the children was reached by Title V programs except during the early days. In Vermont and Connecticut, for example, the proportion of the population receiving well-child services declined between 1950 and 1970. By 1970 only 1 percent of Vermont's and 7 percent of Connecticut's children under the age of 21 were being served by well-child clinics (*2*). As was noted by the American Academy of Pediatrics, "A small percentage

of the population at risk is receiving direct, personal, preventive services, even if only the poor are considered" (*3*).

On the other hand, there is substantial evidence that State and local health departments have been effective in reducing perinatal mortality and providing preventive services in selected areas. In California, a county with a strong health department yielded much lower perinatal mortality rates than matched counties with traditional private practice systems or other traditional health care organizations (*4*). A North Carolina health department perinatal regionalization program resulted in a 34-percent decrease in fetal mortality compared to only a 10-percent decrease in a control area (*5*).

Whether the major factor in these studies is the participation of the health departments per se or the establishment of regional networks financed by a variety of sources is not known. Also unknown is the specific activity of the health department that leads to lower perinatal death rates. The most likely factor for change is the deployment of public health nurses, but this theory has not been tested.

An early evaluation of the New York City MIC program was highly favorable and showed that the program reduced infant mortality. Unfortunately, its results are difficult to interpret since no comparisons were made with other groups (*6*). A later study in Georgia showed a reduction of 44 percent in total infant mortality in counties with MIC programs, compared to 20 percent in counties without them (*7*). These excellent results may, however, be partly due to a family planning program which operated concurrently in the MIC project area. However, Michigan in 1974–76 also showed a consistently lower neonatal mortality rate for those receiving care in MIC programs than for those not receiving such care. The data on the fetal death rate were more equivocal (*8*).

State health department Children and Youth projects provided greater health maintenance services for older children than did similar projects run by medical schools or teaching hospitals. Unfortunately, they also cost more (*9*). In Baltimore in 1968–70, Children and Youth Programs were effective in preventing rheumatic fever among children in those areas served by such programs compared to other children (*10*). The results, however, cannot be attributed solely to the C&Y program because an Office of Economic Opportunity Health Center also participated in the program. Nevertheless both were publicly supported programs.

State health departments have been particularly effective in promoting mass preventive screening and immunization programs. In Massachusetts, the introduction of a PKU program resulted in an estimated saving of over $300,000 in 1972–73 (*11*). State health departments have also been relatively successful in rubella immunization programs, although coverage is by no means complete (*12*). In 1977, the Michigan EPSDT/Medicaid program seemed to have been successful in bringing the immunization levels of poor children up to the levels reported for high income children (*13*).

State health departments have been less successful in mass surveillance activities, such as the development and maintenance of registries of crippled children that most States abandoned following World War II. Rheumatic fever registries have proved no more successful; for example,

only one-third of the documented cases of rheumatic fever in Minnesota were reported to the State registry (*14*).

The EPSDT under Medicaid has had a wide impact on the financing and availability of preventive services. The program's complex administrative structure makes it both a welfare and health responsibility, but in 14 States, the program is either directly administered by or contracted out to the health department (*15*). In 1976, 16 percent of the 13 million children eligible received EPSDT screening services (*16*). As might be expected, the EPSDT programs carried out by strong health and welfare departments seemed more effective in reaching children (*17*).

Despite the above instances in which State health departments have been effective in promoting preventive health services, their impact in general has been extremely limited and focused more on filling gaps rather than on planning statewide services. The General Accounting Office (1979) found, for example, that State maternal and child health agencies have generally not fulfilled the role of focal point for improved management of activities directed at improving pregnancy outcome. Where States have operated preventive programs, the evidence would indicate that the health agencies have been relatively successful and that problems arise mainly from the limited nature of the programs and from their limited administrative capacities.

Neighborhood Health Centers

Neighborhood health centers are semi-public agencies whose contribution to preventive care is often difficult to define. Orso (*18*) found that for persons of all ages, preventive visits accounted for a lower proportion of visits in an urban Boston health center than the national average for office-based physicians.[4] Although preventive services may have been incorporated into illness-related visits, and thus been under-reported, the authors concluded that the amount of preventive care would not have exceeded that reported for traditional practices. In Cleveland, of a sample of active patients registered with a neighborhood health center for the previous 5 years, 20 percent of the children 15 years old and under had not received physical examinations, although the pediatric director felt they should have had one annually (*19*). In a West Oakland clinic, only 6 percent of the visits were for preventive care and these were mainly immunizations and required school physical examinations.

Neighborhood health centers, if not successful in delivering routine pediatric preventive care, have had more success with immunization. The General Accounting Office (1978) in its survey estimated that 89–92 percent of the children participating in the health centers had received "shots, immunization, or oral vaccine". This figure seems high when compared to the evaluation of an intensive outreach program in a neighborhood clinic where it was thought to be impossible to reach the BCHS immunization goal of 90 percent, particularly since funds for outreach workers were being severely restricted (*20*).

[4]This particular center also incorporated a C&Y project so its effects are confounded by the method of financing.

As promoters of preventive services the NHCs have been only moderately successful. This may be because they care for people of all ages and tend not to emphasize the care of children for whom preventive services are more important. It may also be because such centers do not have sufficient staff and funds to carry out extensive prevention programs.

Schools

Schools at one time were believed to be ideal places for providing preventive services because they had a captive population. In many States regularly scheduled physical exams are a prerequisite for school attendance and all States have laws requiring immunization (*21*). Despite these requirements, the history of school health services has not been productive. Yankauer (*22*) found that school health exams had a low yield and were of little value as a case finding measure.

However, there may be groups of children, such as the poor and near-poor, for whom a non-traditional school health program, incorporating screening treatment and follow up may be helpful. A study of a school health program in central Harlem which provided health assessment and follow up for poor children showed that two-thirds of the children referred for treatment did receive care. This was a much higher proportion of successful referrals than was found in school health programs without follow up (*23*).

Experimental comprehensive school health care programs in areas with a high proportion of poor children have been established during the past few years under the sponsorship of the Robert Wood Johnson Foundation. A preliminary evaluation in Galveston, Texas, showed that 94 percent of health maintenance contacts for children took place in the school (*24*). Even though newer types of comprehensive care programs in areas with needy children may be more effective in promoting health maintenance than traditional school health programs, there are at this time no clear answers about the effectiveness of any type of school health program. Definitive evaluation of these special school programs must await further research.

Outpatient Departments

Outpatient departments of hospitals do not appear to be notably successful in the provision of preventive services. One study indicated that black mothers who used outpatient departments, like those who had no regular source of care, were less likely to use preventive care (*25*). A study of an outpatient clinic in a teaching hospital by the McMaster University Clinic of Canada showed that only 41 percent of the children under 1 year had the number of visits recommended by the Academy of Pediatrics (*26*).[5] By the age of 4-5, the proportion of children making the recommended number of visits had fallen to 20 percent and the *highest*

[5]At that time the Academy of Pediatrics recommended a very high number of visits (9–12) during the first year, it is perhaps not surprising that there was such a low compliance rate. Since then, the Academy has decreased the recommended number of visits during the first year to a level met by the clinic.

complete immunization rates for any disease were 45 percent (*26*). The authors of this study did point out that after discussions with the pediatricians about the standards and procedures, the proportions of appropriately completed procedures nearly doubled.

Health Maintenance Organizations

Health Maintenance Organizations (HMOs) or prepaid group practices have traditionally been regarded as likely providers of high levels of preventive health services as a result of the health maintenance incentives considered inherent in this form of organization. During the late 1950's enrollees in the Health Insurance Plan of Greater New York (HIP) had lower perinatal mortality rates than other persons in New York. This held true for both white and non-white populations and for those populations delivered by private physicians (*27*). These differences, however, could at least in part be accounted for by socioeconomic differences in the populations.

In 1979 HIP had a less enviable record in providing preventive services to Medicaid eligible children. Through a review of a random sample of 178 medical records the New York State Office of Health Systems Management (*28*) found that complete or partial preventive examinations were performed for fewer than 40 percent of HIP's child enrollees during 1978. As in all studies based on record examination, the question must always be raised whether these findings reflect poor services or poor documentation of services. Nevertheless, because it is important not only to carry out services, but to document them, such findings are disturbing.

An East Baltimore study found that children whose usual source of care was an HMO did not have higher immunization levels than those who used other sources of care. However, the children were more likely to have had a physical examination during the previous year particularly if they were over the age of 6 (*29*).

In a survey of Washington, D.C. children, the use of preventive care (checkups) was higher among children in prepaid group practices than among children served by solo practice physicians or hospital outpatient departments (which had the lowest rates) (*30*). Because this survey was carried out on a single somewhat unique population (90 percent black), the investigator warned that the results might not be applicable to other cities.

Prepaid group practice per se may not produce what is considered appropriate use of preventive services. Luft (*31*) has suggested that greater use of preventive services in an HMO may be determined by better financial coverage rather than by the preventive care ideology. Once the financial barriers are removed utilization of preventive services would be determined mainly by the patients themselves. For particular populations, such as the poor, belonging to an HMO by itself may not increase appropriate preventive care. In a study of Kaiser-Permanente Neighborhood Health Center of California, pre-school children who received the services of an outreach coordinator had a 55 percent higher utilization of preventive services than did a matched group of enrollees. The conclusion was that, at least for those children who were poor, outreach services were

an important and necessary part of prevention, even in a prepaid group practice (*32*).

Fee-for-Service Private Practice Physicians

In general, private practice has not been considered as effective as other forms of organization in promoting prevention services. A survey of pediatric practices in Baltimore showed that only 80–84 percent of the 5-year-olds had complete recorded immunizations for DPT, polio, and measles and only 12 percent had a recorded hematocrit or hemoglobin (*33*). The low number of procedures carried out could represent low recording, or that these procedures were not carried out in private practice.

Similar findings on immunizations were found in physicians' practices in Iowa. In that study, only 36 percent of the 2-year-old children surveyed in 13 private practices had complete recorded immunizations as recommended by the U.S. Public Health Service for that age group (*34*).

As mentioned previously, children in Washington, D.C. who were patients of solo practice physicians used less preventive care than those in prepaid group practices or hospital outpatient departments (*30*). However, a subsample of those children had a higher than expected number of illnesses. These differences were not related to the organization of care (*35*). Later findings, although consistent, were not statistically significant, and must be viewed with certain caution (*35*).

A Rochester survey drawn from one-quarter of all children born during 1965–1969 who did not have a private physician found that less than 10 percent received "a level of health supervision that is considered adequate by Rochester pediatric standards, and less than 1 percent received the level recommended by the American Academy of Pediatrics" (*36*). Thus, private physicians, when scrutinized carefully, do not have an illustrious record in promoting preventive care. The organizations most apt to promote it are public health departments and sometimes HMOs.

Comprehensive and Continuous Care

Comprehensiveness has been taken to mean (1) the provision of all services from preventive through rehabilitative and (2) the provision of services to an entire population. The first definition of comprehensiveness has also been expanded to include not only medical, but psychosocial services as well (*37*).

Comprehensive care as a goal appeared in the 1965 Amendments to the Social Security Act as part of the projects for Children and Youth established under Title V. As the legislation and regulations developed, each C&Y project was to ensure that eligible children and youth within its district received comprehensive ambulatory care at a single center, as well as appropriate referrals for hospital care when necessary.

Continuity of care has not been formally espoused in any legislation, but was assumed as a necessary goal of good medical care. Its absence from the legislative mandate may reflect a lack of interest among

policymakers to ensure that quality care is rendered rather than just to ensure that services or financing are available. Rogers and Curtis (*38*) in reviewing the definitions of continuity of care point out that it can mean both the extent to which a single physician manages a person's health care, or the extent of coordination of an individual's health care.

For purposes of this paper, comprehensiveness means that all types of services are provided, that services are provided for all conditions, or that services are provided for an entire population; continuity is taken to mean both a single source of all care for an individual or a single source which coordinates care from many sources.

State and Local Health Departments

Health departments have attempted to provide comprehensive care mainly through two mechanisms: the Crippled Children's Services (CCS) and C&Y clinics, but also have tried to achieve some comprehensiveness of care through the EPSDT program.

The crippled children's program has not been comprehensive in either the scope of conditions treated, the types of services provided, or the proportion of children with handicapping conditions it has served. For example, of children born with cleft palates in Maryland in 1969–71, only 12.7 percent were known to the Crippled Children's Service (*39*). Moreover, many children who were both clinically and financially eligible, received services outside the CCS system (*40*).

Estimates of the proportion of U.S. children with birth defects treated by CCS in 1975 range from 14.8 percent for PKU to 37 percent for cystic fibrosis (*41*). However, these figures only indicate that CCS delivered some care to these children; they do not indicate what proportion of total care required was provided or paid for through the CCS program.

Only 14 of 49 States surveyed were found to be providing services for children with diabetes in their CCS programs (*42*). Inadequate coverage for diabetics in Florida by CCS led to the establishment of a State-sponsored Regional Diabetes program in 1974 (*42*). In Appalachia, a special mobile neurology team was formed to provide services not otherwise available to children in rural areas (*43*). Children in need of care were referred to other sources for treatment. Forty-two percent were referred to the health department and for some who needed special treatment the only available source of care was a University of Kentucky Medical School.

When the CCS program first began, most States had no restrictions on financial eligibility. However, as costs of treatment increased, as more types of illnesses were included in State CCS programs, and as funds did not increase greatly, States began to establish financial eligibility standards for treatment. Usually, these are set at levels high enough to include at least the working poor, with the assumption that Medicaid pays for the poor.

In addition to financing care, CCS also establishes services which are otherwise unavailable. Because this aspect of the CCS program has not been coordinated it is difficult to assess its effectiveness. For example, State CCS programs have established heart treatment centers, and cystic

fibrosis treatment centers, but there is no way of estimating how much of a need has been met or whether more or less should have been done. The proportion of children served by this program has remained fairly low. Because CCS is not comprehensive by disease, child, or financial eligibility and, because of the lack of adequate data, it is difficult to determine whether or not continuity is provided either.

Children and youth projects originally could be run by health departments, teaching hospitals, or medical schools. However, C&Y projects seem to have been most effective when run by health departments providing comprehensive care, preventing hospitalization, providing outreach, and moving children rapidly through the system (*44*).

In a 1978 study of eight C&Y projects within one HEW region (*45*) participation by children and youth in the target area was relatively low, from 15 to 20 percent; for the two programs for which such estimates could be made, participation of poor children was between 20 and 50 percent. The comprehensiveness and continuity of care also varied. In five rural projects, only preventive services were provided, while in the urban projects some, but not all, preventive, diagnostic, and treatment services were available. All projects had nutrition programs. Some projects provided social work services; others did not.

No information is currently available on the effect of organization or financing on the comprehensiveness of services rendered in other health department programs, such as maternity nursing or MIC projects. However, the very existence of MIC projects may reduce the comprehensiveness of care because they segregate children by age. Many health departments attempted to get around this problem by placing MIC projects at the same sites with C&Y projects or other clinics. In this case, the funding source of the program decreases comprehensiveness and shows how conflicting incentives and goals are created by piecemeal child health policy.

The Medicaid program was not initially concerned with comprehensiveness or continuity. When some State health departments (Texas, North Carolina, and Michigan) undertook screening for EPSDT they could not provide comprehensive or continuous care. Although the EPSDT programs in these States reached a high proportion of those children eligible for screening and although State agencies could provide preventive services and payment for treatment they could not provide continuity of care either through a single source provider or through an oversight system.

At best State health agencies have a mixed record in providing comprehensive or continuous care, partly because they are required to provide certain specialized services which are not available through the private sector and partly as a result of their reluctance to become heavily committed to providing direct health services (*21*).

Neighborhood Health Centers

Although the scope of pediatric services provided by neighborhood health centers, either directly or through referral, is fairly comprehensive, their performance appears less adequate if the proportion of eligible

children actually served is taken into account. Neighborhood health centers, like the C&Y clinics, have target areas to serve. However, there are no data to show the extent to which such centers provide comprehensive coverage of a geographic area. Nevertheless, there is some evidence that neighborhood health centers once they enroll a given population are able to maintain a stable population, thus providing some continuity. For example, a Boston center was successful in keeping 80 percent of the patients who used the center from one year to the next (*17*).

When neighborhood health centers are established in a new area, sometimes they lead to more continuous or comprehensive care and sometimes they do not. After the establishment of such a center in a district of Rochester, children in that district had fewer emergency room visits than did children in the rest of the city (*46*). However, other studies showed that this shift away from emergency room use did not always hold true. Levy *et al.* (*47*) found marked differences in patterns of use among the neighborhood health center registrants. Forty-four percent of children at one center used it for limited primary care only. This meant that the neighborhood health center was used primarily for checkups, while the emergency room was being used for treatment. At no neighborhood health center were more than half the children receiving comprehensive primary care.

One important aspect of comprehensive care is good management of referrals outside the center itself. In a study of Boston area health services, neighborhood health centers (and hospital primary care centers) were more likely than other providers to refer children appropriately to other sources of care (*48*). Thus, neighborhood health centers may provide services which are more comprehensive than other forms of organization, but even with the range of comprehensive and continuous services they offer, fragmentation may occur. This fragmentation may arise because parents choose to use different health providers even when all needed care is offered at one site.

Schools

In the past, school health services focused on specialized preventive care and screening but more recently there has been a shift toward the establishment of primary care centers in school. When school health centers are tied to a neighborhood health center with 24-hour coverage the part-time nature of the school programs does not limit continuity or comprehensiveness of care. Nevertheless, despite their obvious advantages school health programs, even for primary care, are another source of fragmentation of care. At present we do not have enough information to draw conclusions about the effect of organization and financing on the comprehensiveness of school health services.

Comparisons of Alternative Ways of Organizing Care

Much of the evidence regarding the comprehensiveness of care appears in studies comparing several different ways of organizing child health care. According to Starfield *et al.*, "A 'Medical Home' and continuity of

care are essential features of first rate medical care" (*33*).[6] Yet, the literature indicates that few child care programs, whether public or private, achieve this goal.

In a study of lower and middle class infants in the New York area, Mindlin and Densen (*49*) found that continuity of medical care was lacking for 40 percent of the white middle class children, and for 90 percent of minority lower class children regardless of their source of care. Other investigators found that one-third of children who were patients at a hospital specialty clinic, had no source of primary care (*50*).

Single providers seemed to be more effective than others in providing continuous care. An experimental Bronx hospital program that provided a walk-in clinic and a specific pediatric nurse practitioner for each patient that were available at all times resulted in lower emergency room use among the experimental group than among a control group who had several providers (*51*). In another experimental study which assigned a single pediatrician to each patient, patient satisfaction was much greater among mothers of children receiving the continuous care than among those receiving episodic care (*52*). Pediatricians may be particularly effective: children who identified pediatricians as their regular source of care received more routine care than children who saw other types of physicians (*33*)

When various forms of organization of child health care are compared for the degree of comprehensiveness of care, results are mixed. Gordis and Markowitz could find no differences in completeness of immunization, morbidity, or mortality between children receiving comprehensive and continuous pediatric care in a family clinic and those receiving traditional episodic care (*53*). In another study, they found compliance with physicians' recommendations was no better in the experimental group than in the traditional care group. On the other hand, two studies of experimental physicians' group practices associated with hospital outpatient departments, but housed separately, reported better outcomes for those children in the experimental groups. Alpert *et al.* in a well-designed study found that children in the experimental group had received 70–75 percent of the "optimal" number of health visits compared with 40–50 percent for the control group (*54*). The experimental group had lower hospital use, laboratory and X-ray use, and illness visits. However, there was no evidence that morbidity was altered. Ullman, Kotok, and Tobin found that children in another experimental physicians' group practice had higher well visit rates and lower emergency room rates than children using the regular outpatient services of the hospital (*55*). Mothers of these patients also said that if they needed help in an emergency, they would call their pediatrician rather than the emergency room or the police. Neither of these two studies presented evidence that morbidity or mortality were affected by the attempts to provide continuity and comprehensiveness. From these data it seems evident that a single provider available 24 hours per day is the best organizational form to

[6] A "medical home" refers to a single provider who is responsible for providing or supervising medical care for an individual.

deliver continuous care. Comprehensiveness of care is maximized when the essential primary care services can be delivered at one site.

Utilization and Access

The related objectives of access to care and adequate utilization have been at the heart of all child health legislation in this country. Each act has focused on specific groups which, without public intervention, would receive inadequate care. Title V funds were to be used particularly for children in rural areas or areas suffering from severe economic distress (Sec. 501). The Title V MIC and C&Y projects all emphasized services for poverty areas. Title XIX, by virtue of its eligibility standards, has been devoted to the health needs of the poorest segment of the population. This was particularly reflected in the EPSDT program and in attempts since 1977 to expand coverage under that program.

The studies most relevant to this analysis have dealt not with the organization of health services, but with the impact of financing on utilization and access. Therefore, it does not seem useful to continue to discuss programs in terms of their organizational patterns as we have done in the previous two sections.

Two kinds of studies contribute to the evaluation of access: comparison of utilization patterns before and after the financing of services is made available, and comparison of the utilization of services by needy users and by others. Before utilization can be used as a measure of access, it must be recognized that appropriate standards have not been established in either Government or private programs. Thus, the criteria in utilization studies vary widely.

The greatest number of available studies are on the effects of Medicaid, which is primarily a financing program. The Medicaid program was developed and implemented on the assumption that the inability to pay for care prohibits appropriate use and access and, conversely, that the availability of financing should increase access.[7] A second barrier to access is simply the unavailability of services, time, or transportation required to reach distant health care facilities.

Medicaid program studies on access of health services present the best data on the effects of financing on utilization. In 1969 children under age 17 in families with incomes under $5,000 visited the doctor 3.5 times per year if they received Medicaid, and only 3.0 times if the were not eligible for Medicaid. However, the children of high-income families (over $15,000) had 4.5 visits (*56*). These figures which are adjusted for at least a crude measure of health status, indicate that the availability of financing through Medicaid reduced, but did not totally obliterate the barriers to access. Between 1964 and 1974 poor children under age 15 (family incomes under $5,000) increased their annual visits from 3.3 to 3.7, while all other income groups decreased their annual visits (*57*). Nevertheless,

[7]For a more detailed discussion, see Dutton in this volume.

children of upper-income families still used physicians more frequently than the poor.

The Quebec health insurance system produced similar results. Two years after this system was instituted, although the proportion of children with symptoms of illness remained the same, the proportion of low- and moderate-income children consulting a doctor increased (*58*).

In the U.S., access to medical care, even with Medicaid, remains limited. In one Michigan county, Medicaid covered only 43 percent of two-parent poverty families and 57 percent of near-poverty single-parent families (*13*). Moreover, in California, administrative formulae for the allocation of these health service funds seemed to favor rural counties rather than the more densely populated urban counties in which most of the poor children lived (*59*). However, one should note that administrative expenses may have been higher in rural areas because administration is always more costly where resources are scattered across sparsely populated areas.

Through the development of additional health care delivery sites, such as neighborhood health centers, public health service programs have provided health care to persons previously without access to it. It is estimated that in 1978, about 12 percent of the persons in medically underserved areas received health care services from these programs (*60*). Another report estimated that about 10 percent of the 45 million persons residing in these areas were served by neighborhood health centers (*19*). Whatever the exact figure, current forms of organizing publicly supported health care in medically underserved areas appear to be inadequate.

In assessing the effect of organizational factors on utilization, several studies have been carried out in prepaid group practices. These would indicate that the deterrent effects of fee-for-service pricing, even when financed by Medicaid, were stronger than the organizational barriers that might be inherent in a prepaid group practice (*30*). In another study based on the same Washington, D.C. interview data, the author concluded that in explaining utilization of health services "income-related factors, particularly the type of health care system used, play a more important role than income itself in determining patterns of discretionary use" (*61*). However, prepaid group health plans despite continuing Federal support, can scarcely be looked to as a major vehicle, at least in the near future, for improving utilization of services, particularly for the poor. At present, prepaid health plans serve only 7 million persons in the United States, about 3 percent of the population. Thus alternative means, such as increased financing and a greater distribution of health resources, must continue to be used to provide adequate access and utilization of health services for children.

Information Systems[8]

Information systems, although not specified in any legislation, have become the means by which the Federal Government ensures itself of the

[8]For a more detailed discussion of information and reporting systems, see Zill and Mount in this volume.

States' accountability for the funds it has made available. In the Title V legislation, this took the form of requiring that State plans be drafted to ensure policy compliance. In addition, the Children's Bureau and its successors in the Public Health Service set up reporting systems for both formula grants under the Title V maternal and child health and crippled children's programs. Reporting on the Title V projects (MIC and C&Y programs) was less stringent and at no time did a system of nationwide reporting on the projects develop. In fact, the Title V reporting systems left much to be desired both in terms of service accountability and financial accountability (*62*).[9]

Under Title XIX (Medicaid), reporting systems were a cause of major concern in Congress, but for the most part, the concern has been about fiscal accountability, not service accountability. The information systems that have been established such as the Medicaid Management Information System are designed to remedy problems such as fraud and abuse, that is, over utilization, not under utilization.

Information systems serve several purposes: (1) to identify children in need and to provide followup services to children so identified, (2) to survey the population from time to time to see if certain procedures, such as immunization, are carried out, (3) to account for Federal and State funds spent on child health. However, few studies are available on the effects of the organization and financing of information systems.

The crippled children's program attempted, particularly in its early days, to set up registries, but these listings were rarely used and proved ineffective in making sure that needy children reached treatment. Recent studies have shown that CCS programs more often than not are unaware of the number and identity of children in need in their States (*40*). High-risk registers were used in England during the 1950's and 1960's, but they did not prove successful in identifying children in need of care (*63*). Similar findings were reported in the study of a State rheumatic fever registry (*13*). Methods for detecting perinatal risk have been developed, but to date there are no studies of the efficacy of such risk registers. Thus, the existence of a high-risk or identification registry per se does not improve services for children. The weaknesses of these statewide systems stem in part both from the lack of high-risk predictors of known validity and reliability, and from the lack of sufficient staff and an infrastructure to use those predictors that might be effective in improving child health (*64*).

Since 1973, the EPSDT program under Title XIX has been charged with identifying children eligible for services and seeing that services are provided. Eligibles are identified, not on the basis of risk, but according to the financial and categorical criteria of the welfare-based Medicaid program. The fact that welfare/social service departments have case files on all families eligible for Aid to Families with Dependent Children (AFDC) should make identification easy. However, many States have had severe problems in setting up computer systems that could identify eligible children and within that group, those who needed care (*64, 21*).

One problem in identifying children existed for those States that included the medically needy in their eligibility files. Since these children

[9]For a more detailed discussion of Title V reporting see Klerman's Title V paper in this volume.

usually were identified only after they or their parents had accumulated sufficient medical bills to make them eligible for the screening program, their names were not readily available or computerized. Just how effective these Medicaid systems have been is unclear. A review of several EPSDT evaluation and demonstration programs indicated that although a statewide EPSDT support system could be used, as it was in South Carolina, it often ran into problems such as the inability to record unsuccessful contracts with a family or to link a family contact form with other data (*65*).

Other EPSDT information system problems have come from the need to transfer information from one State agency to another. For example, in many States, the welfare/social service agencies would not transfer data on eligibility to health or education department workers who were charged with finding the children. Another type of problem arose in Texas which had an excellent computerized information system which printed out the names of all children due for screening. However, these data once available, rather than being given to case workers, went to central offices where they sat unread. The case workers claimed that, in any case, the data would have been obsolete by the time they received them.

The major problem with Medicaid information systems, however, is that they were designed primarily to provide information on payment, not on services. Those States that have been most successful in overcoming these obstacles are those which from the outset had strong computerized data bases and a capacity in both health and welfare departments to function effectively (*17*). States such as Michigan (*66*) and Texas (*21*) were particularly successful in developing information systems to identify children needing services.

Surveillance activities are an integral part of a health department's role. Surveillance is carried on through the reporting of cases of specific diseases by physicians to local and State health departments. Such reporting is relatively accurate for serious diseases likely to be diagnosed by physicians. However, the systems set up to handle such information are not always designed in such a way as to be compatible with the needs of health services planners. Two examples stand out as exceptions. One was the immunization surveillance activities begun in 1977 under President Carter's directive (no evaluation available); the other was a Minnesota State health department influenza surveillance system in 1974–75 which included direct monitoring through laboratory reports and indirect monitoring through absenteeism rates (*67*). The primary difficulty with surveillance systems is that to be successful they must be disease or procedure oriented. Thus, they cannot serve as the basis for ongoing monitoring systems for all health services.

Any effective information system that can provide data on the services rendered as well as financing must include the ability to provide surveillance for disease-specific conditions as well as overall information about the health needs of children. The problem with present systems is that even where they exist, they are fragmented and gather information on only selected segments of the child population whether by age, disease, geographic area, or financial eligibility.

STRENGTHS AND WEAKNESSES OF HEALTH PROGRAMS IN PROMOTING GOALS

Prevention

Public State and local health departments have been among the most effective groups in delivering preventive care to children. Their programs have been particularly successful in carrying out immunization programs, promoting mass screening programs, programs of perinatal care, well-child services and in particular MIC and C&Y projects. It is not surprising that public programs have been most effective in carrying out preventive care for poor children since that is what the public sector has emphasized. Public agencies, following a philosophy of not interfering with the private practice of medicine, have stepped in only when it was evident that children's needs for preventive services were not being met by the private sector. This means that although public agencies may have been successful in reaching limited groups of children, they have not succeeded in providing regionwide or statewide services.

Private health providers, neighborhood health centers and prepaid group practices have been less effective than public agencies in promoting prevention. At least, that is what can be concluded from presently available research. Part of the problem in evaluating the effectiveness of preventive care is that different standards for preventive care have been used in different studies. If the minimum standards for preventive care were nationally agreed upon we would then have clear criteria against which to assess such programs.

One successful form of organizing preventive care for children is to have nurses or lay workers visit or even screen children in their own homes. In such a program developed in Colorado, half of the families considered to be high risk for child abuse or neglect were given special counseling, and well-child care which included regular home visits. They also received more than the usual number of office visits and telephone calls. At the end of one year, no child in the high-risk group who had received special care had a serious injury that was considered to be due to abnormal parenting. However, such injury did occur among high-risk families who did not receive special care (*68*).

A program in Appalachia designed to promote more traditional preventive care for children produced mixed results. No differences in health outcome were found between children who received special outreach services and those who did not. However, problems in the research design may have obscured real differences between the two groups and the authors therefore concluded that the study group may nevertheless have benefited from special outreach services despite the lack of significant findings (*69*).

Hoekelman and Zimmer (*36*) found that hospital-based public health nurses could significantly increase the entry of poor babies into the well-child care system, while Dawson (*70*) reported that a screening/outreach

program in a housing project also proved effective in getting high-risk children into preventive care services.

The EPSDT program found that the critical factor in getting poor children to preventive care was the manner in which the parents were informed of the services available. When parents were informed in person at the welfare department or during a home visit by case aides, they were more likely to use preventive services than when informed by mail or telephone (*71*).

Whether performed by public health nurses, lay visitors, or case aides, outreach seems to be an important factor in ensuring preventive care for high-risk children. These services have been found useful for targeted programs such as prevention of child abuse or perinatal mortality (*3*), for more general programs such as prepaid group practices (*32*) or EPSDT.

Comprehensive and Continuous Care

No public nor private system seems to deal adequately with comprehensive or continuous care. Again, definitions cause problems in evaluating programs. If, however, the basic minimum is assumed to be a single provider charged with responsibility for primary care and coordinating other care, this goal has not been realized either in public or private systems. The best sources for such care seem to be single providers who in groups or in outpatient clinics can provide 24-hour service. Certainly, mobile clinics have been of little use in promoting comprehensiveness of care since they create their own forms of fragmentation (*72*).

In attempting to establish continuous and comprehensive care, the methods of organizing programs themselves promote fragmentation. For example, programs such as CCS, designed to meet special needs, provide comprehensive services for a given condition, but fragment services by diagnosis or by separating services for the handicapped from those delivered by regular primary care providers. MIC and C&Y projects fragment by age group; neighborhood health centers by geographic area.

The real question then becomes how much comprehensiveness and continuity are necessary to promote child health? That question cannot be answered easily because the available literature seldom addresses outcomes. It does give some clues, however. For example, good health does not necessitate that all medical services be rendered at a single site. However, it is desirable that all primary care services be provided at one site. Even then, if the facility or staff are not available around the clock it is likely that users will also resort frequently to emergency rooms. It may be desirable to have the primary care provider coordinate all other types of services. However, because there is little evidence to indicate that this is the present pattern for children receiving care through either the public or private sector, it may seem unreasonable to require that public programs provide services hitherto unavailable to those in the private sector.

Utilization and Access

Utilization and access have been affected by several public programs. Medicaid has reduced the gaps in utilization between low-income and

high-income persons. Public Health Service programs such as the neighborhood health centers have reached about 10–12 percent of the persons in medically underserved areas. Health maintenance organizations, many of which receive start-up financial assistance from the Federal Government, serve 3 percent of the U.S. population as a whole. The effects of the Title V maternal and child health and crippled children's programs on utilization or access are harder to assess since few evaluations are available. However, it seems evident that the planning and service component, particularly of the CCS program, has been important in many States in ensuring the availability of certain types of services. Therefore, both financing and organization by Federal and State agencies appear to be critical in improving access and utilization.

For instance the relationship between CCS and other service and financing programs is complex. If insurance were available for all parents with handicapped children instead of the present financing for the poor under Medicaid, and the working poor and some middle class under CCS, the financing aspect of the CCS program would no longer be necessary. Whether the service components would still be necessary cannot easily be determined on the basis of presently available data. One is inclined to say they would because, as the EPSDT programs has demonstrated, a financing program that merely gives recipients the opportunity to buy services that are not available is not very useful (*73*).

In addition, there is increasing evidence that system-determined factors must be distinguished from patient-determined factors in health services utilization. During a 6–10-year period in two prepaid practices, some children were consistently high users while others were consistently low users despite the fact that they were members of the same type of practice (*74*). Therefore, to focus solely on organizational and financial barriers of care may be misleading. It will be important to learn whether those children who are consistently high users are those at highest risk and therefore need the most contacts and whether the lowest users are at lowest risk. If this is true, research must also be undertaken to learn whether it is possible to identify poor children at risk, or whether only the utilization patterns elucidate the risk information after the fact.

Information Systems

Information systems and accountability are provided better by State systems than by projects, localities, or the private sector. However, none of the public systems have been adequate to date. The three elements of such a system—identification of children in need, surveillance of the population, and accountability of funds *and* services—remain difficult and costly to monitor. However, they can be monitored only by public agencies with appropriate reporting from private providers.

The ability to establish accountability in terms of services rendered may prove to be the most important contribution of information systems. Presently existing child health programs have done very little to ensure such accountability. The Title V formula grant reporting systems have provided frequently overlapping or duplicated data. When the MIC and C&Y projects provided data at all, it was expressed not in terms of the

population in areas served, but in relation to that proportion of the population enrolled in the program. The EPSDT program also has for the most part functioned without adequate accountability and use of its information systems.

Virtually none of the present public sector child health systems have been able to supply any degree of accountability for their programs. However, lest one be too harsh on the public system, one must keep in mind that there is no accountability in the private system either.

Information systems have great potential for assisting in the delivery of child health services. Because they have not received high priority in the past and because they have been used mainly to assess accountability in financing rather than quality of care, their potential remains untapped.

AVOIDING FRAGMENTATION

The most persistent complaint about child health policy is its fragmentation. Fragmentation of children's health needs occurs because programs are developed on the basis of age (*75*), disease, area of residence, type of care, method of financing, or form of administration, whether public or private, Federal or State. All health policy fragments care in some way. The problem for policymakers is to determine what type and degree of fragmentation is acceptable and what is unacceptable.

The most evident fragmentation occurs when responsibilities for preventive and primary care are assigned to different providers. The Title V programs, by establishing well-child clinics, provides preventive care through the public sector while treatment is handled by the private sector. This split was intensified in certain States under the EPSDT program where the Title V agencies provided screening for all Medicaid-eligible children but limited the services strictly to screening. Even immunizations were often carried out separately at different sites or times. A public health nurse in one State pointed out that staff in the EPSDT screening clinics, even for a problem such as scabies, had to refer the child to a physician rather than prescribe the appropriate and readily available treatment (*20*).

This fragmentation has been somewhat mitigated in neighborhood health centers and hospital primary care centers. However, these programs fragment care by geographic area or hours of the day and continue to serve relatively small numbers of children across the United States.

Fragmentation also occurs when primary care is separated from other levels of care, thus raising questions about the ability of public agencies to provide continuous care.[10] Either all primary care is not provided by a single provider or at a single site, or primary and secondary care are rendered by different providers with little coordination. This presents a particular problem for those primary care centers, such as some neighborhood health centers, which do not provide 24-hour service. Under these circumstances, private providers through use of telephones

[10]Whether continuity contributes to the quality of care is debatable. Some recent evidence would indicate that it does not. See (*76*)

seem to provide more continuous care than do the ostensibly comprehensive neighborhood health centers.

Administrative arrangements are another source of fragmentation for child health programs and this takes many forms. First, much child health responsibility is divided between the public and private sector. Public financing and health services are available for only those groups of children who do not have access to the private sector. Therefore, public financing programs, such as Medicaid, pay for children on welfare and those otherwise categorically eligible; categorical programs, such as CCS, finance and provide services for children with certain handicapping conditions who also meet financial eligibility requirements; neighborhood health centers, C&Y, and MIC projects meet the primary and some secondary health needs of children in certain geographic areas. The public sector usually only makes its presence known when the private sector has already demonstrated its inability to provide services. Strong health department maternal and child health programs tend to be found in States where the networks of private preventive services are relatively limited for poor children. The absence of competition from the private sector facilitates public action. The public agencies perceive their roles as filling gaps, not establishing complete care systems. However, even in this limited role, public health agencies would need better information than they now have to know what the needs are. Moreover, under the current system of service, children and their parents have difficulty finding out what resources are available through either the private or public sector.

Another form of administrative fragmentation results from multiple public health programs administered by different Federal, State, and local agencies. The Federal Government finances services through Medicaid and CCS, provides funds for establishing services through neighborhood health centers, maternal and child health, and CCS, and provides funds for State administration of maternal and child health services. The State agencies carry out surveillance of child health services and provide some services through their own and Federal funds. Finally, counties and municipalities provide some planning, surveillance, and direct services on their own with the assistance of Federal and State funding.

Each level of government tends to see the other levels as being the source of fragmentation. States may complain that the Federal regulations for categorical programs make it impossible for them to integrate various programs. Often, however, it is State regulations, budgeting provisions, or bureaucratic rivalry which prevents the pooling of Federal funds and programs. States may resolve these problems very differently. Michigan, for example, integrated the EPSDT screening program with its ongoing Health Department Title V programs. Texas, on the other hand, placed the EPSDT screening program into the Health Department, but kept it completely separate from the Title V well-child programs within that same department, a move that was totally unnecessary from the Federal point of view.

A final source of administrative fragmentation is the allocation of health functions to several different Federal and State agencies. For example, Medicaid, the major public financing program of child health is administered in most States by the social services/welfare departments.

School health may be administered by State or local school boards, and the departments of agriculture administer nutrition programs. At the State level, no single agency controls child health planning, the funds to be allocated, nor the resources to be developed.

Fragmentation has several outcomes. First, it has led to the odd patchwork of present programs in child health. With nearly every new program enacted, a bureaucracy with its own administrative goals and culture is also created. However, this new bureaucracy then creates a demand for its own continued existence regardless of need. The entrenchment of these bureaucracies also often makes it desirable when starting new programs to establish them under independent auspices to give them a fresh start and avoid the competitive bidding among other agencies. These two processes then lead to more fragmentation rather than less. One must break the cycle somewhere, but it becomes increasingly difficult as existing programs vie with one another to maintain visibility and solvency.

Second, fragmentation can also decrease access because the public sector payment system is so complex. This has been a particular problem in the case of maternity care. Private physicians in California were reportedly reluctant to refer pregnant patients for specialized care because if they did not perform the delivery, they would not receive any payment for the prenatal care they had provided (*4*). In California, it was also noted that virtually no intrapartum maternal transfers took place from a community hospital to a specialized perinatal care regional center, nor did antenatal referrals for special tests occur within the private sector (*77*).

A third result of fragmentation is the multiplicity of policies that emanate from three levels of government and from three to four different agencies at each level. Not only does it lead to multiplicity of programs, but simple confusion and uncertainty. When fundings are delayed for new programs (*78*) or when the method of the administration is changed (*79*), policy changes affect all levels of government.

Because of the fragmentation of child health policy, State and local planners for child health services have to piece together different kinds of funding from different sources in order to put a program together. This results in the usual complaints from the States about the Federal Government fostering fragmentation, but more often than not the States themselves also contribute to the sources of this fragmentation through their bureaucratic structures.

Organization and financing affect the degree to which fragmentation will occur. Policymakers must choose between favoring groups of children of particular ages, diseases, or geographic areas over others. The easiest solution to avoid some forms of fragmentation is to finance and organize health services for all children. This limits the fragmentation to the children themselves. However, some fragmentation may nevertheless persist because a child may still need to see different providers for different types of care. Nevertheless, a universal method of financing, which also finances some organization of this complex system, would help considerably to assist children and their parents through the maze of services to achieve timely and appropriate health care.

FACTORS THAT FAVOR CHILD HEATH GOALS DEVELOPMENT AND MINIMIZE FRAGMENTATION

One factor that seems to help public programs to function is the absence of competition from the private sector. For example, Orso (*18*) noted that one health center studied fared well because there were few physicians and no organized health facilities to create opposition or competition. A similar lack of competition for the patients served by the Denver Health Department and City Hospital facilitated the development of an integrated health and hospital service in that city. One cannot, of course, look toward the rapid demise of the private sector as a means to improve public sector services, but observations do indicate that the competition among private health providers in any area does not necessarily mean that they will promote health programs for those sectors of the population underserved by them. It also seems that the only time public programs have the clear support of private providers is when there is absolutely no competition.

A second factor that influences the success of some public programs is the ease and low cost of some types of administration. It is easier for a health department to institute a surveillance program to assess the immunization levels of children in a State and to set up immunization clinics than it is to establish ongoing service systems. A one-time surveillance program such as PKU, for example, is much easier to administer than a system of primary care for groups of children throughout the State. Therefore, it is not surprising that State health agencies have frequently focused more on these former types of services than on the planning and delivery of more general health services.

A third factor that works well bringing children into contact with a health system is the use of outreach workers. Whether such people are visiting or public health nurses, health visitors, outreach workers, or whatever, they have shown themselves to be remarkably effective in health prevention and particularly in bringing high-risk children to care. From all the studies it seems evident that there are certain groups of children and their mothers who will not readily step forward for care or for whom access to the health system is so difficult that their needs must be met at home. The access barrier in these cases may not be so much a matter of finances or transportation, but of language or social customs. Even when all other barriers are down, these barriers will persist for certain groups of parents and children. For these high-risk groups, outreach may be critical in ensuring receipt of care.

One factor that has not been tested in any studies to date is whether programs that use low-level technology and less highly trained personnel may be as effective as high-technology programs and highly trained personnel in delivering preventive and continuous health services for some groups of people. For example, health visitors, nidwives, and childbearing centers may be as effective in lowering perinatal mortality as the high-technology regionalized perinatal centers. The ater may be efficient only

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for high-risk mothers and infants who could be identified early. However, as long as there is no research comparing the two approaches, it is difficult to identify the most effective methods of organizing such care.

When these and other features are combined in a single health program, they can be extraordinarily successful, as has been the case in Denver during the past 10 years. Denver has developed a citywide integrated health and health services department that provides primary and secondary care in its own clinics and hospitals. The program is directed mainly to the poor, but its 180,000 active registrants, out of a city population of over 600,000, include the working poor as well.[11] The program has integrated the categorically separate Federal and State programs to provide services in terms of the city's demographic needs. Each person in the system has a single medical record that follows him from clinic to hospital to clinic again.

The question is whether Denver's experience can be replicated elsewhere. Denver's success can be attributed to a number of factors. Among the most important has been the existence of an energetic group of enterpreneurs in the Health Department and at the city and State level who were willing and able to integrate available city, State, and Federal funds. Part of their success lies in their ability consistently to obtain large Federal grants to supplement third-party payments. Denver receives more Federal health funds per capita than most other localities in the country. It is unlikely that other localities receiving comparable funds would be able to achieve the same integrated health services structure as Denver because they might lack other essential elements such as the administrators and political climate necessary to take advantage of such funds. It would be out of the question for the Federal Government to finance every locality the same as Denver.

The Denver experience is encouraging, but difficult to replicate. It does, however, demonstrate what can be done given a favorable environment, capable administrators, and sufficient funds. The Denver experience is similar to Title V demonstration projects such as MIC, C&Y, and intensive neonatal care. They are all operating under optimal conditions with high levels of financing and resources. Such demonstration projects have shown that good services can be delivered by public programs to limited groups of people under optimal conditions although they have done little to spread resources to a larger segment of the population.

If there is one lesson to be drawn from these experiences, it is that more demonstration projects are not needed. In fact demonstration projects counter the broader goal of equitable access to health services for all children. If States were to be encouraged to apply for such special health grants for demonstration projects, then, very likely those localities that have resources would get more and those without would get less. By encouraging demonstration projects, policymakers reduce the likelihood that children in all parts of the country would have at least some minimum access to minimum care.

[11] Abraham Kauver, M.D., interview, September 27, 1979.

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OPTIONS FOR CHILD HEALTH POLICY

The preceding discussion would indicate that there is no single, simple, presently available system to implement the four policy goals presented at the beginning of this paper. Existing public programs are more successful in achieving some goals than others. The goals themselves may be competing, if not conflicting. To achieve any of the goals and to avoid fragmentation, any system must combine methods of organizing, financing, and researching services. These three methods may be discussed separately, as they are in the options presented below, but they must be understood to be inextricably linked. Particularly for organizing and financing, one cannot do one without the other. Some of the options presented can be implemented independently, but others are part of a system.

The strategic question in attempting to implement any of the options is whether to proceed incrementally or to attempt to reform the system all at once. The lessons of the child health programs during the 50 years would indicate that incremental strategy has had some limited success because public child health programs today are demonstrably better than they were. The incremental approach has also led to increased fragmentation with a proliferation of programs so that no one public agency is responsible for planning, organizing, and financing child health. The temptation is to proceed incrementally because that is the politic thing to do. Unfortunately, such an approach may create as many problems as it solves by perpetuating piecemeal approaches to child health.

Organization

(1) Create a continuing governmental administrative unit within State health departments. Its functions, greater than those of past State Title V maternal and child health and CCS agencies, would include:

- Surveillance activities such as monitoring of immunization
- Identification of children in need. (This is a planning function that would require continuous epidemiological assessment of needs, both environmental and for personal health services. At present, such functions are more within the domain of the health planning agencies. However, it would be useful to have planning take place in the same agency which is empowered to establish services.)
- Monitoring and gathering information on children who receive public services
- Establishment of direct health services where the health department ascertains need. (The ability of a State to provide such services depends on the availability of long-term, predictable, comprehensive funding, not simply categorical or demonstration grants.)

- Monitoring health services received by all children through inspection of clinics and hospitals and by requiring all providers to meet minimum performance standards when reimbursed by third-party payers
- Reporting to the Federal Government on the planned services, funds, and implementation to meet children's needs.

The advantages of setting up such an administrative structure are (1) that it is already partly in place; (2) that it provides a central planning mechanism for maternal and child health; and (3) that information gathering, planning, and implementation can be carried out by the same administering agency. Essentially, it is an expansion of the functions of the Title V agencies.

The disadvantages are (1) that it will necessitate increased State/Federal investment to establish such agencies in every State; (2) that an agency or subdivision within a health department which is devoted only to children will conflict with other health programs which serve other populations; and (3) that needs assessment and monitoring are difficult and costly to carry out.

(2) Establish within the State health departments or in private nonprofit agencies home visitor services for all or any one of the following functions for all or only high-risk families.

- Prenatal and perinatal care
- Health education for parents of infants under 1 year
- Home visits for children at high risk for abuse and neglect
- Visits to inform parents and children of available care and how and when to use it
- Screening of high-risk infants and children

Such services are best carried out when integrated into the State agency services, but could be carried out by an independent non-profit corporation if such a group worked closely with the State health department and with the providers of services in the area. At present, the EPSDT program, visiting nurse associations, public health nurses, and neighborhood health centers to greater or lesser degrees carry out some of these functions. However, these services are currently program dependent, not population dependent and therefore create a fragmented system. Outreach services could be financed either through per capita grants to the agencies, or on a fee-for-service basis.

(3) Substitute, where possible, low technology care for more costly high-technology care, such as midwives rather than obstetricians for routine prenatal and perinatal care. If sufficient preventive services of this kind are established, the need for the high-technology regionalized perinatal services may be minimized. However, such a strategy should be coupled with a continuing recognition of the need to provide specialized care as a backup for preventive failures.

(4) Establish through Federal grants to the States more health centers in medically underserved areas. The advantage of organizing these through the States rather than through local auspices is that it allows the States to select priorities. However,

such freedom should be coupled with a requirement for minimum services that must be available in all parts of the State.

(5) Establish through Federal grants and/or loans to the States more health maintenance organizations. This is a long range recommendation since it will be many years before HMOs are able to meet the needs of many children in the United States. To choose this option would be a recognition of the fact that HMOs may be more effective providers of comprehensive health services to children than other sources such as private physicians or neighborhood health centers.

Financing

All the proposals require the type financing that cannot be provided solely by payments for the services themselves. The costs of these services could be met by an insurance system that provides payment to the providers, and to the administration and establishment of services. Payments could also be funded through the present mechanism of Federal grants for the administration and establishment of services and third-party financing (insurance, Medicaid) for the services themselves.

Any financing system that does not take into account the need to finance the organization of services will fail to provide for large segments of the child population. It would be futile to establish a national insurance system for services that are simply not available. Some part of the financing must therefore be directed toward organization. Whether this is done by allocating part of the insurance funds or by setting up separate funds should be considered.

(1) Establish a national child health service wherein the Federal Government out of general revenues pays for both the organization of child health services and the services themselves through capitation, fee-for-service, or salary to the provider. The advantage of this option is that it avoids some of the fragmentation of primary and secondary care services. The disadvantage is that it requires so many changes in the present health system that it may not be feasible.

(2) Establish a compulsory national insurance program for children up to the age of 18. The program would be funded by premiums paid by parents and employers, and by general revenues for those below a certain income. These insurance funds would pay not only for preventive care, routine treatment, and catastrophic services for children, but also for the establishment of services in underserved areas and for State administration. Home visitors should be considered as part of these additional services. The premiums for such a program could be collected either by the Federal Government or by private insurance agencies with the recognition that if the latter group administers the premiums, additional fragmentation may occur with an additional administrative layer. This program would allow for both administration of services and payment for them. Because it would cover all

children regardless of financial and categorical eligibility requirements it would avoid much of the fragmentation that exists today. Having the financing mechanism uniform it would also avoid the fragmentation that occurs when a single provider has to bill more than one insuror. Moreover, it would provide a check on duplicate or incomplete billings. Because all care would be financed by the same source, it would also mitigate the differences between private and public care, and provide State health agencies with a means for monitoring care.

(3) Maintain the financing system as is with service financing through Medicaid, grants for the establishment of services through Title V and other Public Health Service grants, and catastrophic financing for children through the CCS program. This is the fragmented system that was described previously.

(4) Add a catastrophic insurance program for all children. This would in fact be an extension of the financing side of the CCS program without overseeing the necessary services or coordination of care. This option would not mitigate most of the problems in the system and might favor the use of high- rather than low-cost technology and care.

Research

As the earlier review of the literature indicated, there are few good studies on the effect of organization and financing the delivery of child health services. Even programs established as demonstration projects, such as C&Y and MIC, were not effectively evaluated. Other programs that have existed for more than 40 years have never been examined carefully.

Despite Government intervention in child health for over 40 years, policymakers have little useful information on which to plan future programs. Whether programs were run by health departments, schools, hospitals, or HMOs, knowledge of their effectiveness is limited. Therefore, if future policymakers are to be able to build on past experience, any program should have, as a major component, evaluative research of the effect of the organization and financing on the delivery of services. This is not so much an option as a necessity. Moreover, the studies should be of ongoing programs, services, and organization, not limited to demonstration projects operated under optimal conditions.

Following are some needs to be addressed in future research:

- Are comprehensive care services, however defined, necessary to promote child health?
- Can adequate care be delivered when the delivery of services is fragmented?
- What are the minimum adequate standards for preventive health services?
- What modes of organization most effectively:
  —reach high-risk children for preventive services?
  —promote comprehensive and continuous care?

—provide high access levels to care?
—promote adequate utilization for high-risk children?

- Is overutilization ever a problem in child health?
- Are low-technology labor intensive programs (midwives, health visitors) more or less effective than high-technology programs (physicians, equipment) for certain types of care?
- What is the minimum data set needed by State health departments to adequately plan statewide primary and secondary care for mothers and children?
- What is the minimum data set needed by State health departments to monitor and maintain accountability of health care providers?
- What is the effectiveness of regionalization programs?

CONCLUSION

All public and private health policy fragments care in some way. To minimize this fragmentation, the public sector must be given funds to administer and organize health services. This often requires the establishment of administrative structures, preferably at the State level. To achieve continuity of care, prevention, adequate access, and information systems, and to minimize fragmentation, it is not sufficient simply to pay for services. A system that only pays for services but does not organize them will do little to achieve the goals that have long been a part of Federal health policy—and it will do so at high cost.

The options presented in this paper offer some ways of reducing fragmentation. A universally financed and State-organized program of health care for all children would achieve these goals and mitigate many of the problems arising from conflicting goals. However, if an incremental plan is adopted to carry out such a policy, or if previous programs are built on piecemeal there will be a risk of continued fragmentation.

REFERENCES

(1) Arrowood, W., F. D. ker, and M. Sandberg. "Public Health as State Policy: The Politics of Prevention in Minnesota." Paper presented at the American Public Health Association Meeting, Washington, November 1977.

(2) Altenstetter, C. and J. W. Bjorkman. *Federal-State Health Policies and Impacts: The Politics of Implementation.* Washington: University Press of America. 1978.

(3) American Academy of Pediatrics. *Report: Maternal and Child Health Program (Title V).* Evanston, Ill.: AAP. 1977.

(4) Newport, J. and M. I. Roemer. "Comparative Perinatal Mortality Under Medical Care Foundations and Other Delivery Models." *Inquiry* 12: 10, 1975.

(5) U.S. General Accounting Office. "Better Management and More Resources Needed to Strengthen Federal Efforts to Improve Pregnancy Outcome." HRD 80-24, Jananuary 1980.

(6) Gold, E. M., M. L. Stone, and H. Rich. "Total Maternal and Infant Care: An Evaluation." *American Journal of Public Health* 59: 1851, 1969.

(7) Bronstein, E. S. "Factors in the Reduction of Infant Mortality in a Maternity and Infant Care Project." *Journal of the Medical Association of Georgia* 63: 425–429. 1974.

(8) U.S. Department of Health, Education, and Welfare "Michigan Maternal and Child Health Program Review." Bureau of Personal Health Services (Mich.) Department of Public Health, 1978.

(9) Wedkworth, V. E., "Final Progress Report: Children and Youth Program and the Systems Development Project." Comment Series 5–7 (49), 1975

(10) Gordis, L. "Effectiveness of Comprehensive Care Programs in Preventing Rheumatic Fever." *New England Journal of Medicine* 289(7): 372–373, 1973.
(11) Massachusetts Department of Public Health. "Cost-Benefit Analysis of Newborn Screening for Metabolic Disorders." *New England Journal of Medicine* 291(26): 1414–1416, 1974.
(12) Modlin, J. R., D. Brandling-Bennett, J. J. Witte, C. C. Campbell, and J. D. Meyers. "A Review of Five Years' Experience with Rubella Vaccine in the United States." *Pediatrics* 55(1): 20–29, 1975.
(13) Gortmaker, S. "Medicaid and the Health Care of Poor Children: Five Years of Change in a Metropolitan Community." Revision of paper presented at the American Public Health Association Meeting, Los Angeles, California, October 1978.
(14) Rice, M. J. and E. L. Kaplan. "Rheumatic Fever in Minnesota II. Evaluation of Hospitalized Patients and Utilization of a State Rheumatic Fever Registry." *American Journal of Public Health* 69: 767–771, 1979.
(15) U.S. Department of Health, Education, and Welfare, "Selected Characteristics of States' EPSDT Programs." EPSDT Division, MSA. Rev. 4/77, 1977.
(16) Foltz, A. M. "Care and Carelessness in Federal Child Health Policy." *Journal of Public Health Policy* 1, (June): 141–149, 1980.
(17) Greenberg, G. D. "Federal Program Implementation in Selected States: A Study of the Implementation of the Partnership for Health Act and of the Early and Periodic Screening, Diagnosis, and Treatment Program in Michigan, Pennsylvania, and Alabama." Final Report, Grant HS 01495, National Center for Health Services Research. Department of Health, Education, and Welfare, 1979.
(18) Orso, C. L. "Delivering Ambulatory Health Care: The Successful Experience of an Urban Neighborhood Health Center." *Medical Care* 17: 111–126, 1979.
(19) U.S. General Accounting Office. "Are Neighborhood Health Centers Providing Services Efficiently and to the Most Needy?" HRD-77-127. June 1978.
(20) Minear, R. E. and B. Guyer. "Assessing Immunization Services at a Neighborhood Health Center." *Pediatrics* 63: 416–418, 1979.
(21) Foltz, A. M. "The Politics of Prevention: Child Health Under Medicaid." Ph.D. dissertation, Yale University, 1980.
(22) Yankauer, A. and R. Laurence. "A Study of Periodic School Medical Examinations II. The Annual Increment of New 'Defects.'" *American Journal of Public Health* 46: 1553–1562, 1956.
(23) May Lan, S., and R. Lowenstein, C. Sinnette, C. Rogers, and L. Novick. "Screening and Referral Outcomes of School-Based Health Services in a Low-Income Neighborhood." *Public Health Reports* 91: 514–520, 1976.
(24) Gilman, S. and P. R. Nader. "Measuring the Effectiveness of a School Health Program: Methods and Preliminary Analysis." *The Journal of School Health*: 10–14, January 1979.
(25) Slesinger, D. P. "The Utilization of Preventive Medical Services by Urban Black Mothers." In *The Growth of Bureaucratic Medicine*. D. Mechanic, New York: John Wiley and Sons (Wiley-Interscience), pp. 197–219, 1976.
(26) McFarlane, A. H. and G. R. Norman. "A Medical Care Information System: Evaluation of Changing Patterns of Primary Care." *Medical Care* 10(6): 481–487, 1972.
(27) Shapiro, S., L. Weiner, and P. Densen. "Comparison of Prematurity and Perinatal Mortality in a General Population and in a Population of a Prepaid Group Practice Medical Care Plan." *American Journal of Public Health* 48: 170, 1958.
(28) New York State, Office of Health Systems Management. "Evaluation of HIP's Performance in the Child Health Assurance Program During 1978." 1978.
(29) German, P. S., E. A. Skinner, S. Shapiro, and D. S. Salkever. "Preventive and Episodic Health Care of Inner City Children." *Journal of Community Health* 2(2): 92–106 1976.
(30) Dutton, D. "Patterns of Ambulatory Health Care in Five Different Delivery Systems." *Medical Care* 17: 221–243, 1979.
(31) Luft, H. S. "Why Do HMO's Seem to Provide More Health Maintenance Services?" Paper presented at the American Public Health Association Meeting, Washington, November, 1977.
(32) Colombo, T. J., D. K. Freeborn, J. P. Mullooly, and V. R. Burnham. "The Effect of Outreach Workers' Educational Efforts on Disadvantaged Preschool Children's Use of Preventive Services." *American Journal of Public Health* 69: 465–468. 1979.
(33) Starfield, B., H. Seidel, G. Carter, W. Garvin, and J. Seddon. "Private Pediatric Practice: Performance and Problems." *Pediatrics* 52: 344–351, 1973.
(34) McDaniel, D. B., E. W. Patton, and J.A. Mather. "Immunization Activities of Private Practice Physicians: A Record Audit." *Pediatrics* 56(4): 504–507, 1975.
(35) Dutton, D. and R. S. Silber. "Children's Health Outcomes in Six Different Systems." *Medical Care*, July 1980.

(36) Hoekelman, R. A. and Zimmer, A. Utilization of Available Well-baby Care by Indigent Population Groups, in *Child Health and the Community*, R. J. Haggerty, K. J. Roghmann, and I. B. Pless, New York: John Wiley and Sons. 1975.

(37) Korsch, B. M., V. F. Negrete, A. S. Mercer, and B. Freeman. "How Comprehensive are Well Child Visits?" *American Journal of Diseases of Children* 122(6): 483–488, 1971.

(38) Rogers, J. and P. Curtis. "The Concept and Measurement of Continuity in Primary Care." *American Journal of Public Health* 70: 122–127, 1980.

(39) White, R. B. "An Analysis of a State Crippled Children's Service Program Using Congenital Facial Clefts as a Prototype Condition." Final Report of MCH Grant MC–R–240349–02–0. Baltimore, Md.: The Johns Hopkins University, 1977.

(40) Klerman, L. V., J. J. Alpert, and K. Mehta, "A Follow-up of Children Handicapped at Birth." Final Report, Grant MC–R–205378, BCHS, Department of Health, Education, and Welfare, 1978.

(41) Ma, P. and F. Piazza. "Cost of Treating Birth Defects in State Crippled Children's Services, 1975." *Public Health Reports* 94: 420–424, 1979.

(42) Giordano, B., A. L. Rosenbloom, D. Heller, F. T. Weber, R. Gonzalez, and A. Grgic. "Regional Services for Children and Youth with Diabetes." *Pediatrics* 60(4): 493–498, 1977.

(43) Baumann, R. J. and M. G. Leonidakis. "Neurological services for Appalachian Children Provided by a Traveling Team." *Public Health Reports* 93: 252–257. 1978.

(44) DeGeyndt, W. and L. M. Sprague. "Differential Patterns in Comprehensive Health Care Delivery for Children and Youth: Health Department, Medical School, Teaching Hospital." *American Journal of Public Health* 60: 1402–1420, 1970.

(45) Wallace, H. *The Status of Children and Youth Projects in Region 8.* Berkeley: University of California School of Public Health, 1978.

(46) Roghmann, K. G. and E. Charney. "The Impact on the Utilization of Emergency Room Services." In *Child Health and the Community*. R. J. Haggerty, K. J. Roghmann, and I. B. Pless (eds.), New York: John Wiley and Sons, 242–252, 1975.

(47) Levy, J. C. R. A. Bonanno, C. G. Schwartz, P. A. Sanofsky. "Primary Care: Patterns of Use of Pediatric Medical Facilities." *Medical Care*, 17 (September): 881–893, 1979.

(48) Spivack, H., J. C. Levy, and M. Crackell. "Specialty Clinic Referrals." In *Primary Care: Patterns and Quality*. J. C. Levy, and R. A. Bonano, Grant MC–R–250371, BCHS, Department of Health, Education, and Welfare, 1979.

(49) Mindlin, R. and P. Densen. "Medical Care of Urban Infants: Continuity of Care." *American Journal of Public Health* 59: 1294–1301, 1969.

(50) Palfrey, J., J. C. Levy, and K. Gilbert. "Use of Primary Care by Specialty Clinic Users." In *Primary Care: Patterns and Quality*. J. C. Levy, and R. A. Bonano, Grant MC–R–250371, BCHS, Department of Health, Education, and Welfare, 1979.

(51) Paneth, N., D. Bell, and R. E. K. Stein. "Emergency Room Utilization in the First 15 Months of Life: A Randomized Study." *Pediatrics* 63: 486–490, 1979.

(52) Becker, M. H., R. H. Drachman, and J. P. Kirscht. "Continuity of Pediatrician: New Support for an Old Shibboleth." *Journal of Pediatrics* 84: 599–605. 1974.

(53) Gordis, L. and M. Markowitz. "Evaluation of the Effectiveness of Comprehensive and Continuous Pediatric Care." *Pediatrics* 48(5): 766–776, 1971.

(54) Alpert, J. J., L. S. Robertson, J. Koss, M. C. Heagarty, and R. J. Haggerty. "Delivery of Health Care for Children: Report of an Experiment." *Pediatrics* 57(6): 917–930. 1976.

(55) Ullman, R., D. Kotok, and J. R. Tobin. "Hospital-Based Group Practice and Comprehensive Care for Children of Indigent Families." *Pediatrics* 60(6): 873–880, 1977.

(56) Davis, K. and R. Reynolds. *The Impact of Medicare and Medicaid on Access to Medical Care.* Technical Reprint Series T–013. Washington: Brookings Institution, 1977.

(57) Davis, K. Medicaid Payments and Utilization of Medical Services by the Poor. *Inquiry* 13: 122–135. 1976.

(58) Enterline, P. E., A. D. McDonald, and J. C. McDonald. *Some Effects of Quebec Health Insurance.* Publication (PHS) 78–3190. Washington: Department of Health, Education, and Welfare, 1979.

(59) Kirst, M., W. Garms, and Oppermann, T. "State Services for Children: Who Benefits, Who Governs?" (Mimeographed), 1978

(60) Lythcott, G. I. "The Health Services Administration: Improving the Access to Health Care of the Nation's Underserved." *Public Health Reports* 93: 637–641, 1978.

(61) Dutton, D. "Explaining the Low Use of Health Services by the Poor: Costs, Attitudes, or Delivery Systems?" *American Sociological Review* 43: 348–368, 1978.

(62) Klerman, L. V. "Title V: Maternal and Child Health and Crippled Children's Services, Social Security Act: Problems and Opportunities." Report prepared for the Select Panel for the Promotion of Child Health, January 1980.

(63) Rogers, M. G H. "The Risk Register: A Critical Assessment." *Medical Officer* 118: 253, 1967.
(64) Foltz, A. M. *Uncertainties of Federal Child Health Policies: Impact in Two States.* Publication (PHS) 78–3190. Washington: Department of Health, Education, and Welfare, 1978.
(65) Reis, J., F. X. Hughes, S. Pliska, M.S. McCain, D. Cordray, P. Held, T. Prince, and P. Kerr. "An Assessment of the Validity of the Results of HCFA's Demonstration and Evaluation Program for the Early and Periodic Screening, Diagnosis, and Treatment Program (EPSDT): A Metaevaluation." Evanston, Ill.: Center for Health Services and Policy Research, Northwestern University. (Mimeographed), 1979.
(66) Kirk, T. R., G. Rice, and P. M. Allen. "EPSDT—One Quarter Million Screenings in Michigan." *American Journal of Public Health* 66(5): 482–484, 1976.
(67) Peterson, D., J. S. Andrews, B. S. Levy, and B. Mitchell. An Effective School-Based Influenza Surveillance System. *Public Health Reports* 94 (Jan-Feb): 88–92. 1979.
(68) Gray, J. D., C. A. Cutler, J. G. Dean, and C. H. Kempe. "Prediction and Prevention of Child Abuse." *Seminars in Perinatology* 3: 85–90, 1979.
(69) Cowen, D. L., G. A. Culley, D.L. Hochstrasser, M. E. Briscoe, and G. W. Somes. "Impact of a Rural Preventive Care Outreach Program on Children's Health." *American Journal of Public Health* 68: 471–476. 1978.
(70) Dawson, P. "Cost-effectiveness of Screening Children in Housing Projects." *American Journal of Public Health* 66: 1192–1193, 1976.
(71) Dickson, H. "EPSDT Impact and Evaluation Studies: Phase II." San Antonio: Regional Health Services Research Institute, University of Texas. (Mimeographed.), 1973.
(72) Gururaj, V. J., R. M. Russo, H. V. Reddy, and J. E. Allen. "Observations with a Mobile Unit in Urban Community Health Programs." *Clinical Pediatrics* 17: 590–594, 1978.
(73) Foltz, A. M. "The Policy Dilemma: Screening and Cost Effectiveness." Paper prepared at EPSDT Working Conference, San Diego, California, February 1977.
(74) *Starfield, B.*, B. J. Van den Berg, D. W. Steinwachs, H. P. Katz, S. D. Horn. "Variations in Utilization of Health Services by Children." *Pediatrics* 63: 633–641, 1979.
(75) Salber, E. J., J. J. Feldman, L. A. Rosenberg, and S. Williams. "Utilization of Services at a Neighborhood Health Center." *Pediatrics* 47: 415–423, 1971.
(76) Roos, L. L., N. P. Roos, P. Gilbert, and J.P. Nicol. "Continuity of Care: Does it Contribute to Quality of Care?" *Medical Care* 18: 174–184, 1980.
(77) Gore, J. "Case Study of Perinatal Regionalization in Southcentral Los Angeles." Paper presented at the American Public Health Association Meeting, New York City, November 1979.
(78) Schlesinger, E. R., M. W. Skoner, E. D. Trooskin, and J.R. Markel. The Effects of Anticipated Funding Changes on Maternal and Child Health Projects: A Case Study of Uncertainty. Report, Grant MC–R–420256, BCHS, DHEW. 1975.
(79) Skoner, M. M., E. D. Trooskin, J. R. Markel, *et al.* 1975. The Impact of Reorganization on Maternal and Child Health Staff in DHEW Regional Offices. Report, Grant MC–R–420256, BCHS, Department of Health, Education, and Welfare.

THE SPECIAL HEALTH–MENTAL HEALTH NEEDS OF CHILDREN

by
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HISTORY OF THE HEALTH–MENTAL HEALTH MOVEMENT IN THE UNITED STATES[1]

During the early history of this country, mental health activities as we know them today did not exist. Resources for children and adults were undifferentiated; demoniacal possession was the chief explanation of most forms of mental disorder; and the scourge, the rack, the stake, and the gallows were the common methods of treatment. It was not until the 1840's and 1850's, due mainly to the efforts of Dorothea Dix, that the country was stimulated into constructive action. The result was the establishment of a State hospital system as we know it today. However, the State hospital was also used, like jails, as the last resort for children who were severely disturbed, and children and adults were still placed together on the same wards.

The provisions of the British Poor Law of 1601 were brought to America by the colonists and determined in a large measure what was done for dependent children for the next three centuries. This law and its successors provided that local governments might set destitute children to work, apprentice them to learn a trade, auction them off to some person who would agree to care for them, or send them to the poorhouse. The full concept of the Poor Law was not finally abandoned by some States until the passage of the Social Security Act in 1935. This act provided for a modest level of financial aid to children in families that had no means of support. Efforts to limit the hours and types of employment of minors started in the nineteenth century but did not have an impact until the enactment of the Fair Labor Standards Act in 1900. Compulsory school attendance began in the mid-eighteenth century but only began to be universally enforced in the 1930's.

It was not until 1899 that the first juvenile court was created in this country by act of the Illinois legislature. Initially, juvenile court judges could only dismiss a case or impose a sentence. Later, probation for young offenders was added, allowing the judge to turn the child over to a

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[1]The material in this section comes partly from a review by Shore and Mannino (*1*).

probation officer. The requirement that imprisoned juvenile offenders must be separated from adult offenders is new and still not enforced in all States.

The growth of mental health clinics for children and youths had its early origins in assisting children with learning difficulties (e.g., the Lightner Witmer's Clinic in 1896) and the treatment of delinquent youths (e.g., the Psychopathic Clinic of the Juvenile Court, established in Chicago in 1909; later it became the Institute for Juvenile Research).

The Commonwealth Fund, working with the National Committee for Mental Hygiene (now called the Mental Health Association), established eight demonstration outpatient clinics for children and youths in 1921. The success of those clinics led to the growth of other voluntary, nonprofit, private child guidance clinics. These child guidance clinics, the forerunners of the current community mental health center model, initially were very interested in prevention and child advocacy, and offered consultation and education to child agencies in the community. However, they soon became primarily psychiatric outpatient clinics located for the most part in urban areas.

The most important contributions of the child guidance clinics were the development of the interdisciplinary team model for dealing with the mental health problems of children and youths, and the beginning of a new approach to treatment which took into consideration the significant influence of interpersonal relationships at home and in school on the behavior of the child.

Inpatient services for severely disturbed children began in the 1920's. The first was probably the children's service at New York's Bellevue Hospital, established in 1923. Soon after this, services were established at Kings Park State Hospital in New York and Allentown State Hospital in Pennsylvania. The first full-time psychiatric outpatient clinic for children was established in 1930 at the Johns Hopkins Hospital as part of the pediatric clinic. Later, similar services were developed at Columbia, Cornell, Yale, Stanford, and Minnesota.

A significant step toward a national recognition of children's needs occurred in 1909 when the first White House sponsored conference took place. These conferences have continued each decade since then. In 1912, the Federal Government also formally recognized the children's field by establishing the Children's Bureau.

It was not until 1930 at the White House Conference that a children's charter was adopted with a statement about the rights of children, including the emotionally disturbed child. However, although children now had these rights, services did not expand accordingly.

In 1935 the Social Security Act was passed, providing grants in aid for blind and dependent children. This act emphasized maintaining the child in the home. The Social Security Act has continued to be a major focus for the funding of many services, including mental health programs to lower socioeconomic groups and handicapped children.

World War II was a critical point in legitimating and advancing the development of mental health services. Mental health, as a distinct area of specialization, expanded rapidly and included special training and its own conceptual and research dimensions. This growth of mental health as a

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separate field led to the establishment of the National Institute of Mental Health in 1948, 2 years after the National Mental Health Act was signed by President Truman. Thus, a national commitment to mental health was generated, with national resources to study and improve the mental health of the Nation. With this rising wave of interest in mental health, the Joint Commission on Mental Illness and Health was established by Congress in 1955 to study and report on the status of mental health care. The summary report and its accompanying volumes mobilized the Nation and challenged the Government to accept its involvement in changing and improving the nature and quality of mental health treatment services, especially in the State mental hospitals which had been the only major publicly financed facility for the mentally ill for over a century. The Joint Commission report also led to the passage of the Community Mental Health Centers Act in 1963. This act and its subsequent amendments committed the Federal Government to a large-scale service program in mental health to be implemented through Federal participation in regional, State, and local efforts, both public and private. Each community-based center was to develop outpatient, inpatient, emergency, partial hospitalization, and consultation–education services for all individuals within the assigned catchment area. By 1976, 548 centers were in existence. These centers treated 1,877,676 persons, almost 25 percent of all mental health patients seen (*2–4*).

Despite this turn of events, however, mental health services for children and youths still remained a low priority and children's services were not recognized as a distinct area requiring special training and often more elaborate funding.

The assassination of President Kennedy by someone who had psychiatric examination as a child but was never treated stimulated discussion among the Nation's leaders and prompted new national interest and concern about the mental health of children. Congress funded the Joint Commission on the Mental Health of Children in 1965 to review the dimensions of the mental health needs of children and to recommend strategies, directions, and programs. In 1969, the Commission published a number of the Task Force reports, as well as its summary volume entitled "Crisis in Child Mental Health" (*5, 6*), which pleaded for a large-scale national mental health program for children to include child advocacy as a major ingredient. The report, the most comprehensive of its kind in the history of the United States on the state of children's emotional and social health, struggled with, but did not resolve, the basic issues of how child mental health could be conceptualized and what priorities should be set. What was highlighted instead was the struggle between treatment and prevention, clinical and social approaches, motivational dynamic approaches and learning approaches, and the medical model as contrasted with the education or the public health model.

However, one of the major results of the Commission's report was the visibility given to children's mental health services, a factor that played a role in amending the Community Mental Health Centers Act and allocating $10 million in 1972 to implement it. This amendment was indeed a historical landmark as it provided for the first time in U.S. history Federal money specifically for mental health services for children

ages 0–17. The program was to be consistent with the developing community mental health principles of coordination, comprehensiveness, and continuity of care, and through local community orientation was to include a wide range of services such as outpatient, inpatient, partial hospitalization, emergency services, and consultation and education. Sixty programs were funded. Grants for these purposes were phased out in 1977. This action posed a threat to children's services.

In 1968, the Omnibus Crime Control and Safe Streets Act created and funded the Law Enforcement Assistance Administration (LEAA), which established youth service bureaus to handle delinquent and nondelinquent youths referred by police, schools, and other sources. The aim of the Youth Service Bureau program is to prevent juvenile crime and to keep young people out of the correctional system. In 1969 the Office of Child Development was formed in an effort to coordinate and consolidate all categorical children's programs in the Department of Health, Education, and Welfare (DHEW). In addition, the Medicare and Medicaid Acts were expanded to include mental health services. The Head Start program included mental health as one type of service to meet the requirement that 10 percent of the children in Head Start be handicapped. Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) was made mandatory by Congress under Title XIX of the Medicaid Act and includes a developmental assessment.

Because of advances in the medical field, many of the infectious and other acute medical problems are now preventable or responsive to treatment. Prenatal and perinatal complications and illnesses have been lessened and approaches to treatment are available. Many children with chronic diseases are living longer, possibly resulting in a new set of complex, expensive, time-consuming problems. The practicing physician spends less time on classical medical problems of children and more time with children who have school, learning, and behavioral problems, often called "the new morbidity" (*7*), as well as with health promotional and prevention activities (*8*).

This concern with the mental health aspects of the medical care of children has increased over the last three decades as increasing knowledge developed on the close interrelationships between psychological and physical processes. The relationships between these physical and psychological processes were found to be even closer with children than with adults. For instance, physical growth and development can be impaired by psychosocial stress and prenatal growth is dependent on the mother's psychological as well as physical condition. Psychological conflicts and stress produce physical and physiological disorders, and these disorders have marked consequences on the emotional development of the child and on his or her relationships within the family.

As pediatrics evolved out of general medicine to address the special physical needs of developing individuals, child psychiatry developed out of general psychiatry to address the special psychological needs of developing individuals. Parallel to this effort, the other mental health disciplines grew and developed subspecialty groups concerned with the special needs of children.

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Child psychiatry began as a clinical not an academic subspecialty and developed in the early years of this century in response to a clear need for clinical services for delinquent youths. Early training was carried out in court-connected clinics and in the Commonwealth Fund supported demonstration guidance clinics of the early 1920's. It was in these child guidance clinics that child psychiatry joined with psychology and social work to form interdisciplinary teams. The American Academy of Child Psychiatry was established in 1953. The American Board of Psychiatry and Neurology officially recognized child psychiatry as a subspecialty in 1959. Because child psychology is recognized by the field of medicine as a subspecialty within general psychiatry, the training programs moved away from the community child guidance clinics into the medical schools and academic centers, where the fundamental task was not only service but also was teaching, research, and service.

In medical schools, child psychiatry was free, at least temporarily, from the restraints imposed by service needs and was stimulated by integration into departments of psychiatry, by its association with pediatrics and other clinical departments, and by the availability of research opportunities.

A favorite quote of the early 1960's was, "Pediatrics and Child Psychiatry have courted each other for so long, it's time they got married." This marriage may not yet be a legal reality, but they did begin to live together in the late 1960's and the 1970's. Child psychiatrists began to work in pediatric units and to collaborate in research and teaching.

Clinical psychology developed as a specialty within psychology departments after World War II. This specialty was primarily academic. Within this academic specialty, students have the same language and research requirements needed for other academic Ph.D. programs. During the 1970's some clinical psychologists expressed concern with the academic model and felt that it was not producing trained psychologists to meet public needs and to provide clinical service. In response some universities as well as some free-standing schools have established a D.Psy. degree, for which training is primarily clinical with minimal or no research requirements.

Although a few social work programs were in existence before World War II, most developed in the 1940's and 1950's. Most graduates worked in State hospitals or community agencies. As a mental health profession, social work flourished with the development of the community mental health centers during the late 1960's and the 1970's.

Psychiatric nursing did not develop until after World War II. The majority of psychiatric nurses have a diploma or a bachelor's degree in nursing plus experience working in a psychiatric setting. In the late 1940's master's degree and, later, doctorate degree programs in psychiatric or mental health nursing developed. The majority of graduates from these programs are in teaching or supervisory positions.

The development of the community mental health center movement of the 1960's created the bridge that allowed child psychiatry to expand its close identity with the other mental health professionals and major social issues as well as to continue its identity as a medical specialty in a medical

environment. This duel identity has been the major strength and, recently, has been the major focus of child psychiatry. Other mental health professionals question the uniqueness and clinical roles assigned to child psychiatry from one perspective and the primary care physicians do the same from another perspective. The areas of knowledge and skills in child psychiatry in the biopsychosocial aspects of children and adolescents are shared by at least one other profession; however, it is the sum of these parts that is unique and not shared with any other medical or mental health profession.

SCOPE OF HEALTH–MENTAL HEALTH PROBLEMS

The Task Force on Pediatric Education (*8*) noted that pediatricians must be trained to work with children identified by the Task Force as subject to great health risks; that is, higher morbidity and mortality rates. Each of the groups identified is equally at risk for mental illness. Specifically, the Task Force noted the following:

- *Children from low-income families.*—There are 10.2 million low-income children under age 18; about one in six live in poverty. The environmental and social stresses of such families contribute to increased mental health and substance abuse problems. These children usually have difficult access to health and mental health services.
- *Children with handicaps.*—More than 7 million of such children are under age 20; less than half are adequately served by programs that help them cope with their problems. The Education for All Handicapped Act (P.L. 94–142) may increase the awareness of such children before it results in more comprehensive health–mental health services.
- *Foster children.*—In 1977 approximately 504,000 children were in foster care; over 395,000 of them were in foster homes, the rest were in institutional or group home care. Half had lived in more than one foster home. Minimal or nonexistent preventive mental health or anticipatory guidance programs were available for the child, the natural parent(s), or the foster parent(s). Minimal or no training was provided to foster care case workers.
- *Institutionalized mentally retarded youths.*—Over 100,000 children live in institutions for the mentally retarded. They represent 50 percent of the populations of these institutions.
- *Criminally detained youths.*—Every day 20,000 youths are placed in some criminal detention center. Adolescents are involved in more than half of all the serious crimes reported in the United States.
- *Offspring of high-risk mothers.*—Pregnant women with no prenatal care or who are malnourished are highly likely to produce low-birth-weight infants. These babies are at higher risk for having varying types of central nervous system dysfunction and resultant school and emotional problems. Low-birth-weight infants occur more commonly among teenage mothers. Also, both the young mother and her child are likely to have emotional problems.

- *Single-parent children.*—Over 9 million children now live with single-parent families. About 15 percent of all children under 3 live with only one parent; 40 percent of these parents maintain a full-time job. Of all children in single-parent families headed by a woman, 51.5 percent are living below the poverty level. Most of these children and families are at risk for emotional problems and are in need of anticipatory guidance and preventive mental health interventions. Day care facilities are increasingly available but are usually not designed or staffed to meet their special needs.
- *Children of racial minorities.*—Approximately 10 million black, Mexican-American, Puerto Rican, and American Indian children are under age 18. These children are more likely than nonminority children to experience poverty and are at risk for both medical and mental health problems. They are also least likely to have access to medical and mental health services.
- *Children of migrant workers.*—The combination of low and unpredictable incomes, poor housing, long hours of labor, morbidity, and compromised education results in a high risk for health and mental health problems. Most of these children are underfed, undereducated, medically neglected, and unavailable for health or mental health services.

Another group of children needing special attention are those in day care centers. It is predicted that by 1990 only one in four married women will be a full-time housewife and mother. The number of preschool children who have working mothers is expected to increase from 6.4 to 10.5 million, producing a critical strain on day care facilities. The Federal Government currently spends nearly $2 billion a year on day care. Although standards regulating the quality of federally funded day care have been in effect since 1968, they have been virtually unenforced. New Federal standards to protect the quality of care these children receive have been developed and currently await approval by the Secretary of the Department of Health and Human Services (DHHS). These standards require care givers to receive some basic training and impose a maximum limit on the number of children allowed in a group as well as on the ratio of children to caregivers. Beyond these minimal standards, additional assurance of health and mental health care should be specified.

One study found that between 15 and 20 percent of the United States population has a mental disorder during any given year (*9*). The point prevalence rate was at least 15 percent with annual prevalence rates of over 20 percent of the population per year. Of these, 20 percent were seen in the specialty mental health sector, and 20 percent were not seen. Over 60 percent of total persons affected by emotional and mental disorders were estimated to have had contact exclusively with general medical professionals. These findings were similar to previous studies. Although the Regier and Goldberg study does not identify children, it appears that the figures were as accurate for children as for adults.

Shepherd *et al.* (*10*) found that among those patients identified by general medical physicians as having a mental disorder, 67 percent received some form of treatment from the physician, usually advice–medication. Another 5 percent were referred for specialty mental

health care and 28 percent were untreated. The role of the primary care physician in recognizing and managing health–mental health issues is critical.

What types of children with emotional and mental disorders are seen by the primary care physician? Starfield *et al.* (*11*) studied this question at 10 different clinical settings and found that the percent of individual children with a wide variety of psychosocial problems varied from 0.6 to 84.4 percent among the facilities. In contrast, the proportion of children having a psychosomatic diagnosis varied very little among the facilities, from 5.7 to 10.8 percent. The wide difference in recognition of psychosocial problems among practitioners was partly felt to be the result of a medical education that emphasized organic rather than mental or social problems and partly to be the result of a lack of sensitivity by the practitioners to behavioral rather than somatic complaints. The study also found that the proportion of visits associated with psychosocial diagnoses was consistently less than half the proportion of children with these problems, suggesting that attention to these problems leads to fewer than average visits for other problems. The data showed that individuals with unresolved psychosocial problems made more visits for nonpsychosocial diagnoses than was expected.

This study suggests why routinely collected data (such as in the National Ambulatory Medical Care Survey) provide much lower estimates for psychosocial morbidity than data collected in medical settings.

The Starfield *et al.* study (*11*) found that at least 5 percent and as many as 30 percent or more of the children seen had psychosocial problems. Other studies show a variation of from 3.9 to 10.1 percent in the diagnosis of child mental disorders (*12–14*). In each of these studies the utilization of the general health services was 2–4 times as great for children with diagnosed mental disorders as for those without.

Thus, studies of adult populations show that between 15 and 20 percent have a mental disorder during any given year. Studies of children seen in primary care settings suggest that between 5 and 30 percent will have a mental disorder. Studies of all ages show that individuals with mental disorders utilize health care services for physical problems at a much higher rate than those without mental disorders.

Approximately 60,000 children and youths in institutions are chronically mentally ill. With the Federal and State efforts to deinstitutionalize patients to less restrictive community facilities, more of these children will be seen by primary care physicians for both their health and mental health needs.

As the "search and find" programs required by the Education for All Handicapped Act (P.L. 94–142) expands in each State, increasing numbers of children with health and mental health problems will be identified. Children will enter the primary care settings who might normally have not been seen.

In summary, the number of children with health–mental health problems is high. The probability is that a greater number of these children will be recognized in the future. The mental health professionals

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should accept the lead in treating these children with major psychiatric problems. Primary care physicians will have to accept the lead in recognizing and treating many of the children with "the new morbidity."

SPECIFIC HEALTH–MENTAL HEALTH CLINICAL ISSUES

Maternal Care

In addition to the physical aspects of medical care for pregnant women, anticipatory guidance and other support should be provided and should take into consideration the expectations about pregnancy and any ambivalence about the parental role. Worries and fears should be heard and discussed.

Maternal or neonate physical stress or pathology are recognized and treated by the obstetrician or pediatrician. Anxiety, depression, or postpartum depression as well as less obvious clinical evidence of emotional or somatic stress must also be recognized.

Ideally such support should continue following delivery, and the family physician or pediatrician must establish a trusting relationship and help allay normal fears and anxieties regarding the child's and the mother's health. Possible future problems with parenting might be apparent during the perinatal time. If special neonatal intensive care is needed because of birth weight or medical complications, special attention must be paid to the maternal–infant relationship and bonding at this time.

General Prevention Efforts During Ambulatory Care

During well-child contacts, the physical and cognitive development of the child is routinely evaluated. Anticipatory guidance or direct counseling and health promotion is readily offered on physical problems such as skin rash, weight, and feet positioning. It is equally important to assess stages of psychosocial development and to offer anticipatory guidance or counseling. Problems with relating, eating, sleeping, crying, and body activity might be a reflection of a physical or a psychological problem. Both the physical and the psychological factors must be considered, recognized, and treated. Evidence of more serious psychopathology of parent or child must be recognized and treated, and mental health must be promoted.

Primary care physicians must be as aware of and trained to respond to psychological prevention methods as they are to general medical prevention methods. A few examples are:

- Primary Prevention
  - —Medical: Immunization, fluoridation of water supply; seat belts in cars

—Psychiatric: Identifying individual differences, anticipatory guidance on psychosocial development, support and counseling for postdivorce single parents, interventions with high-risk infants–parents

- Secondary Prevention
  - —Medical: Screening for early identification of anemia, scoliosis, visual or hearing impairments
  - —Psychiatric: Screening for school–academic readiness, awareness of unhealthy psychological development (e.g., fear of strangers, inability to separate)
- Tertiary Prevention
  - —Medical: Rehabilitation after injury, minimizing side effects with children having a chronic illness
  - —Psychiatric: Rehabilitation toward maximal academic, social, and psychological growth with children having a chronic illness; supportive intervention following hospitalization or surgery

Some special psychosocial problems might only be recognized during a general medical visit. The consequence of not being aware of the diagnostic clues can be just as serious as missing an early clue for a physical problem. Family dysfunction and violence is one area where spouse, child, sibling, and sexual abuse must be recognized before any form of intervention is possible.

The single-parent family is another special situation. Predictable stresses, anxiety, and depression occur for both parent and child. How these are reflected are age dependent. Anticipatory guidance or preventive counseling can result in a functional single-parent family. If such help is not available or the early clues of stresses, anxiety, or depression are not recognized, a dysfunctional family or dysfunctional family members might result.

In the population background paper prepared by Dr. Susan Aronson, the goals of health services for infants and children were noted to be "to reduce death, decrease disability, disease, and discomfort, and foster development of achievement and resilience of children." The primary care physician must see these goals as covering both the health and the mental health needs of infants and children. To reduce death also means to recognize the psychological clues of an abusing parent. To decrease disability includes lessening the nutritional or environmental situations that produce central nervous system dysfunction and academic difficulties as well as the family or psychological situations that produce psychopathology. To decrease disease includes the recognition of a neurosis as well as an iron-deficiency anemia. Psychological discomfort can be as painful as physical discomfort and must be reduced. One must foster optimal psychological development as an ability to cope.

In summary, the major contact point for children and parents with psychological needs is the general health care setting. Prevention, education, and early intervention efforts must exist for mental health care as well as for physical health care.

The physician must be aware of the psychological stress on the child produced by illness as well as the stress often experienced by other family members. With such awareness, preventive efforts and guidance can be offered. The psychological stresses experienced by a child with a medical problem and the secondary stresses experienced in the family are best illustrated by noting the reactions of such children to hospitalization. The responses to separation from family and home, to medical and surgical procedures, and to the possible experience of discomfort or pain vary with age but are all too often predictably present (*15, 16*).

Several studies noted that following hospitalization children might continue to respond for weeks to the stresses experienced during hospital care (*17, 18*). These responses include general anxiety, regression to earlier behaviors, increased separation anxiety, sleep and eating problems, aggression toward authority, and apathy and withdrawal. Therefore, it is good preventive health–mental health care to avoid hospitalization if at all possible. If a child must be hospitalized, the anticipated stresses must be minimized. If evidence of psychological or family stress is noted, clinical interventions are needed.

During the past 20 years general mental health principles have been integrated slowly into pediatric settings (*19*). Hospitals have incorporated some of the essential elements; however, few have planned, organized, and implemented a total, integrated program of medical and emotional care. Shore and Goldston (*20*) emphasize four major principles to be considered in minimizing emotional stress:

(1) Hospitalization should be avoided if possible. Recent advances in medical care permit more opportunities for outpatient and home care. (Unfortunately, Federal and current third-party models of coverage encourage hospital care instead of ambulatory care.)

(2) Whenever possible children should be prepared for hospitalization. Total education programs (e.g., school class visits to hospitals and hospital personnel sessions in the community) can include preparation for imminent admission.

(3) When hospitalization must occur, it should be as brief as possible. Increasing ambulatory care facilities plus parent training can decrease the length of stay. (Again, most Federal and third-party plans encourage the use of the hospital treatment phase.)

(4) During hospitalization certain needs must be met to assist the child and family in dealing with the experience.
- Facilities for parents to stay overnight
- Maintenance of contacts with the family as much as possible during the administration of medical and surgical procedures
- Staff training to explain to the children and their families what is happening in a constructive, understandable manner

- An educational program that can continue the child's formal learning while in the hospital
- The ability to express and handle normal anxieties through efforts such as providing opportunities to translate passivity into activity and to use play objects toward mastery of the situation
- Playrooms with trained personnel to permit free play and to help with fantasies and fears
- The opportunity to bring objects from home to which a child is attached and to have them available when needed

If a child must be hospitalized, part of the postdischarge medical or surgical followup should include questions relating to emotional and social functioning. Evidence of residual emotional stress should be handled. Ignoring the emotional sequelae of hospitalization could be just as harmful to future growth and development as ignoring the physical sequelae.

Chronic Medical Problems

A chronic medical illness creates stress for the individual and the family. Special coping skills are needed. The stresses are not just related to the specific problem (e.g., malaise, pain, or other physical symptoms). They are related to the frequent hospital admissions and the treatment procedures (medical and surgical), the changes in the emotional climate of the family, and the possible limitations on peer and other social interactions. Also, stress factors can relate to a specific chronic illness; for example, a child with a seizure disorder will fear loss of consciousness or uncontrollable strange behavior. Children with serious respiratory diseases such as asthma may have a fear of suffocation. The child with cystic fibrosis may have a similar fear in addition to the need to cope with such embarrassing symptoms as flatulence and stool odor. Hemophiliac children must restrict their behavior and fear injury. Children with chronic renal disease must handle frequent hemodialysis, kidney transplantation, and the side effects of the immunosuppressive drugs. The child with a chronic heart disease might have the reverse problem; he or she may have no symptoms. This child, therefore, will resist the need for restrictions or extensive workups. For some illnesses, the treatment results in additional problems such as pain, physical limitations, or hair loss. Some forms of treatment create new disabilities: for example, radiation used in leukemia can produce brain damage with resulting learning disabilities in school.

The child with a serious chronic disease must also cope with threats of exacerbation, lasting physical impairment, and fear of impending death or a known shortened life expectancy. Some children feel that they are a burden to their family and others. The mounting medical expenses and the interference of the illness on school, peer activities, or future adult performance add to this stress.

Each stage of psychological, social, and intellectual development changes the impact of the illness on personality development, family functioning, and the ability to adapt. Thus, awareness of and support for

psychological problems must be part of the ongoing management of any chronically ill child.

Chronically ill children must comply with medical instructions, often hurting or depriving themselves as well as avoiding activities they enjoy. Without understanding, psychological coping, and motivation, the child might be noncompliant, increase the complications, and/or have greater need for medical care or hospitalization.

In addition, psychological stress can precipitate an illness or exacerbate an existing illness. The need to work both with the health and mental health needs of such children and families is critical. If this work is to be done by the primary or general health care physician, these physicians must be trained to do it.

To illustrate the preceding issues, consider children with diabetes mellitus, a leading public health problem. This illness requires prolonged and expensive medical care and is a major challenge to the primary care physician. The usual medical regimen includes insulin injections at regular intervals, specific balanced diets that do not contain sweets, regular testing of urine for the presence of sugar (glycosuria), and exercise programs, none of which can be seen as a positive experience.

Diabetes is a disease that presents recurring threats of blindness, heart disease, kidney failure, gangrene, and other devastating complications. Living with the fear of these disabilities superimposed on daily demands of observing a vigorous medical regimen is a severe stress for the entire family. Many diabetics are subject to powerful, unpredictable mood and behavior changes that are a function of metabolic imbalance. Moreover, chronic, nonmetabolic stresses associated with the disease include the need for diet management; rigid meal schedules; urine testing; various daily therapeutic decisions; daily insulin injections, if required; fear of developing serious complications; and alterations in life style. These stresses frequently result in significant emotional disequilibrium and occasionally in clinical psychiatric disorder. Impaired self-esteem is common. Denial, anxiety, hostility, and depression also occur and may impair interpersonal relationships at various levels. Despite continuing gains in understanding this disease, our present state of knowledge remains insufficient either to prevent or cure diabetes or to provide diabetic patients with optimally effective treatment. Although the search for a means of prevention and a cure continues, a need to focus on easing the emotional burdens and improving the quality of life for diabetics and their families exists.

The burdens of living with diabetes are always heavy. However, the nature of the problems varies with the life stage of the individual. Diabetes is a particularly difficult disease for children and adolescents. Their continued health and longevity depend on their active cooperation with their family and physician—a degree of responsibility and cooperation not required of other children. Diabetes is the only disease in which the patient and the parents are expected to make independent therapeutic decisions based on daily clinical observations. Although this daily control of the disease is dependent on the patient and family members, it has been repeatedly demonstrated that an understanding of the disease and mastery of the necessary skills required are inadequate for a large proportion of

diabetics and their families. Despite the fact that improved understanding leads to improved care and outcome, accessible and well-designed education programs are lacking.

Emotional stress or problems can lead to noncompliance with the regimen by omitting insulin injections, falsifying urine test reports, eating indiscriminately, not exercising, or not keeping appointments. Early education and preventive psychological counseling can minimize such problems. Unless the behaviors related to noncompliance are handled, increased crises, the need for heightened medical management, hospitalization, and possibly, other complications will arise.

The effect of stress and noncoping on physical functioning illustrates another health–mental health relationship with diabetes through a generally accepted model of action. Stress, via the automatic nervous system mediates the release of catecholamines (epinephrine, norepinephrine). These catecholamines inhibit the actions of insulin by suppressing the release of insulin from pancreatic beta cells and by antagonizing the specific peripheral metabolic effects of insulin. Both of these factors result in an increased rate of carbohydrate (glycogen) breakdown. In addition, they increase blood sugar by direct stimulation of the liver to break down carbohydrates (hepatic glycogenolysis) and to produce new sugar (gluconeogenesis). Thus, stress leads to an increase in catecholamines which decreases insulin release, increases peripheral insulin antagonism, and increases glucose production by the liver, all of which result in an increased blood glucose level. Catecholamines also favor the breakdown of fats (lipolysis) with an increase in free fatty acids and ketones. The combination of increased blood glucose, free fatty acids, and ketones can result in diabetic decompensation.

When treating children with chronic medical diseases, the professional staff must provide early education, anticipatory guidance, and other preventive efforts for the child and family. They must be as astute in recognizing and treating early signs of psychological dysfunction as they are in recognizing and treating the early signs of physical dysfunction.

Without such a comprehensive awareness and treatment approach, an increasing possibility of noncompliance and major social or psychological problems with the child and the family occurs. Unmanaged, the emotional and social problems that develop might become more restrictive and uncontrollable than the underlying chronic illness.

Chronic Psychiatric Problems

Approximately 60,000 chronically mentally ill children live in institutions. Current data do not show the number living at home. Many, if not most, of the chronically mentally ill children are now institutionalized in State and county hospitals or in other public facilities; a few are in private hospitals and institutions. Some children also receive limited health or mental health care; however, complete data are not presently available on these institutionalized children. What is known is that children with

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organic brain syndrome, childhood psychoses, and mental retardation with psychosis are among those who are institutionalized.

As noted previously, the national policy favors deinstitutionalization with a shift toward community-based, ambulatory care. Thus, an increasing number of chronically mentally ill children will be seen by health care professionals. For some, the primary care professional will have full responsibility. Ideally, a mental health professional will share these responsibilities by accepting the primary responsibility for the mental health care while the primary care physician will provide the medical and health promotional care.

Primary care physicians will need additional areas of knowledge and skills to help these children and their families, and to function as consultants to educational and rehabilitation programs. Presently, they are likely to use tranquilizers or other psychotrophic drugs or to design behavioral management programs. Because chronically mentally ill children may have difficulty communicating, physicians must perform rigorous diagnoses to differentiate between physical illness, general somatic complaints, and somatized psychological problems. Management of these patients takes considerable time, some of which is spent consulting with the school, community agencies, and mental health professionals. Part of this time will be nonincome producing. For primary care physicians to handle chronically mentally ill children, they will have to receive additional preparation either during their training or continuing education curricula, and reimbursement systems for mental health services will have to be changed.

THE CURRENT SERVICE DELIVERY MODEL

Primary Care

Current medical care in the United States is centered on the concept of primary care. Primary care physicians include general practitioners and family physicians (21.5 percent of all physicians), internists (15.4 percent), and pediatricians (6.4 percent). Thus, most of this care for children will be provided by the general practitioner or family physician.

Because the physician is contacted first, the primary care physician encounters a variety of complaints (including psychological ones) and provides the main or sole services for many of them.

Ideally, the primary care physician should

- Serve as the entry, screening, and referral point within the larger personal health care system
- Provide a full range of the basic health care services necessary to preserve health, prevent disease, and treat common illnesses and disabilities
- Provide the support for patients and their families in times of trouble or crises which are associated with illness
- Assume responsibility for the management and coordination of health services throughout the entire care process

In reality, the primary care medical delivery system in the United States is a "nonsystem." Contrary to the British National Health Service and other European systems with one entry point for care (the general practitioner), residents of the United States have several entry points including private physicians, neighborhood health centers, prepaid health care systems, and emergency rooms. Americans may seek specialty care directly without being referred by a primary care physician.

The delivery of mental health care in the United States also occurs in a variety of settings. As noted previously, Regier and Goldberg (*9*) estimated that 60 percent of those with a mental disorder were seen in a general medical setting. The others were seen in community mental health centers and other public or private ambulatory or hospital facilities.

This statistic raises questions as to whether the primary care physicians know how to recognize and diagnose children with emotional problems or whether they are trained and able to do so.

Most of the studies on these questions do not distinguish between adult and child patients (*21*). However, the work of the Task Force on Pediatric Education (*8*) suggests that the general studies are as true for pediatricians as they are for other primary care professionals.

Surveys of primary care physicians suggest that they do not feel they were adequately trained to recognize, diagnose, or treat patients with mental disorders or the emotional aspects of physical disorders (*11*). In two American surveys, 70 percent of primary care physicians preferred to refer patients to a mental health professional instead of managing them (*4*).

Several surveys (*4*), including one of pediatricians, have shown that (1) many primary care physicians lack interest in psychological problems and prefer to focus on somatic issues, (2) formal psychotherapy is difficult within the structure and environment of a primary care practice, (3) time is insufficient for psychological exploration–intervention, and (4) the financial reimbursement systems do not adequately cover the time needed for psychological services by other than certain mental health professionals.

General health and primary health care physicians do not recognize or diagnose some mental disorders and either do not or inadequately treat others. Several studies of caseloads of primary care physicians show that about 15 percent of patients seen are recognized as having a mental disorder; however, where other studies suggest that when a standardized psychiatric interview of patients is added, 27 percent of the patients are found to have such problems.

A National Ambulatory Medical Care Survey (*4*) showed that in 67 percent of the patient visits that resulted in a psychiatric diagnosis, tranquilizers or other medications were prescribed; these studies included children. Primary care physicians are less likely to differentiate length of treatment among various psychiatric conditions. Patients with psychiatric diagnoses were seen once or twice a year regardless of diagnosis or indicated treatment.

Current data suggest that as primary care physicians become better skilled in mental health diagnosis they find more cases and the number of referrals to mental health professionals increases rather than decreases. It

is possible that the trend toward primary and general health care providers meeting the mental health needs of the country has led not only to uneven care but also to an increase rather than a decrease in the need for psychiatrists and other mental health professionals.

Mental Health Care

In many parts of the country, the type of mental health care for children depends on available resources instead of on the ideal clinical intervention. If children with emotional problems can function in school, the family, and the community, care can be provided in a local outpatient clinic. If a child cannot function in one of these settings and no comprehensive service system exists, that child might have to enter a 24-hour hospital or residential treatment program. Discharge from these programs often has to be delayed until the child is able to function in the community. Furthermore, residential care is often provided away from the family and because minimal family therapy is offered the child might return to the same dysfunctional environment he or she left.

A comprehensive system of care for children would include outpatient services, partial hospitalization programs, short-stay community-based inpatient units, and longer stay hospital or residential care facilities. If a child is having difficulty functioning in a specific environment he or she could be admitted to a day hospital to replace school, a night hospital to replace the family, or an afternoon program to replace the community. Also, many children could be kept in inpatient units only as long as needed and would then return into a partial hospitalization setting.

Without a comprehensive system, children are treated as outpatients or as inpatients. A child who could have been treated less intensively and expensively might be hospitalized and that stay might be for a longer period than is necessary.

Juvenile court judges report that their decision regarding placement is, at times, based more on the availability of resources than on the needs of the juvenile offender. Surveys of juvenile offenders in prisons show that some are mentally retarded, psychotic, or have a severe character disorder. They became part of the juvenile justice system because they had to be removed from their family–community and mental health facilities were not available for them.

A comprehensive system of care must be available for children with emotional problems. Few partial hospitalization programs exist because the current third-party and Federal reimbursement plans do not pay adequately for such services. The reimbursement system encourages outpatient or inpatient care only.

Other Service Delivery Systems

Some children in the educational system have physical and mental health problems, including those with chronic health and mild or severe

emotional problems. Presently, the Education for All the Handicapped legislation requires a comprehensive program for each of these children in an environment as normal as possible. However, no assurances are given that the physical and mental health needs will be met. Few programs are designed to prepare normal children to accept and understand the handicapped children in their classes. Training to prepare teachers for their new responsibilities is also lacking.

As noted previously, many children with health–mental health problems are in the social and welfare systems as foster or other alternative placements. Not all receive adequate health or mental health care. Other youths are in the various levels of the justice sytem, often with minimal services.

Although the regulations for Head Start, Home Start, and Follow Through programs require physical and mental health screening and counseling, these services either are often not available or are fragmented. Furthermore, day care programs vary greatly in their ability to provide more than babysitting services and few have backup health or mental health support services.

In most areas, programs are not unified in a comprehensive physical and mental health care system and services are fragmented. Physical and mental health services for children are scattered throughout many Federal agencies including the Departments of Agriculture, Labor, Commerce, Justice, Education, and Interior with the Department of Health and Human Services taking the lead. White House Child Health Conference reports since the 1930's have suggested the need for a child advocate to ensure comprehensive physical and mental health care, but one still does not exist. The President's Commission on Mental Health (*22*) noted the variety of Federal programs that provide screening and followup care for the health and education of infants and children and emphasized the importance of physical and mental health linkages. The Commission recommended that "The Secretary of Health, Education, and Welfare (now HHS) review existing Federal programs that pertain to health and mental health services for infants and children and design a coordinated national plan to make available comprehensive services for all children."

The Mental Health Systems Act

Based on the recommendations of the President's Commission on Mental Health, the Department of Health and Human Services (then the Department of Health, Education, and Welfare) developed the Administration's Mental Health Systems Act which was sent to the Congress by the President on May 15, 1979, and signed into law in October 1980.

The Community Mental Health Center efforts focused on developing comprehensive services within a defined area through the efforts of one facility. The Mental Health Systems Act will assist States in developing comprehensive mental health services throughout their jurisdictions by using public and private resources.

PROFESSIONAL PERSONNEL

Primary Care

Pediatricians and family physicians are the primary care health providers for children. Other members of the health team consist of physicians in other specialties, general nurses, pediatric nurse practitioners, and physician assistants. The training and roles of these nonphysician professionals and paraprofessionals might include training in mental health but usually does not. In England, social workers participated in general practices on an experimental basis. Initial studies showed that recognition of mental health problems increased and that more treatment for them was provided.

In hospitals, health teams consisting of pediatricians, child psychiatrists, and/or other mental health professionals have been successful.

The roles of primary care physicians are unclear and their training varies. Health promotion and disease prevention must be part of primary care. Beyond this, several possible roles for primary care physicians are

- Recognition of a condition, diagnosis, and referral (as in surgical disorders)
- Recognition of a condition, diagnosis, brief treatment, and referral if the treatment is not successful (as in dermatological disorders)
- Recognition of a condition, diagnosis, and treatment (as in general medical disorders)

Ideally, one would not sharply define the role of a primary care physician, but would allow each to choose his own level of activity.

The training must be related to the anticipated role. If the physician is expected to refer the majority of patients with emotional problems to mental health professionals, training should emphasize recognition of mental disorder and suitable referral, in the same manner as primary care physicians are trained to make surgical referrals. On the other hand, if the physician is expected to treat significant numbers of patients with mental health problems, training should include the proper use of psychotrophic drugs and the various types of psychotherapeutic techniques. Where the physician works with a multidisciplinary physical and mental health team, training in team techniques and group dynamics would be useful. If the physician is to be the primary educator and counselor of families, he or she should be trained in family systems dynamics and family therapy techniques.

The requirements for family practice are much more specific than those for pediatrics (*23*). The special requirements for residency training in family practice state:

> The resident should learn how to diagnose and manage most psychosomatic and emotional problems. He should become competent to deal with the common tensions, anxieties, and depressions that initiate or complicate a substantial proportion of the problems with which the family physician will be faced. The resident should learn to recognize the neuroses and psychoses and to provide for the

after-care which many patients require following discharge from a mental institution.

In the family practice unit, most of the pertinent knowledge and skill can best be acquired through a program in which psychiatry is integrated with medicine, pediatrics, and other disciplines. In addition, experience on a specialized psychiatry service with responsibility for the care of serious illness under supervision may be desirable. This will enable the resident to recognize major psychoses and to deal with the psychiatric emergencies which constitute a major problem for family physicians.

Despite these requirements it is probable that some or many programs provide only limited experience in mental illness.

The special requirements for residency in pediatrics are more ambiguous:

> Clinical training *should be obtained* in general medical pediatrics, nutritional disorders, care of new-born infants, preventive pediatrics, and outpatient clinics in the various departments of medical pediatrics. Correlative studies *are recommended* especially in contagious diseases, in clinics for well babies, in the mentally deficient, and in those with neurological disorders or who present problems in behavior. (emphasis added)

The American Academy of Pediatrics' Task Force on Pediatric Education (*8*) is addressing this problem.

Perhaps a minimum curriculum for primary care physicians covering the health–mental health areas should cover the following areas:

- Knowledge of biopsychosocial growth and development
  - —abnormal
  - —variations of normal
  - —pathologic
- Ability to perform biopsychosocial interviews
  - —be able to collect data
  - —understand the significance of the data
  - —integrate data
  - —establish and formulate a treatment plan
- Ability of psychopathology of children and adolescents
  - —with children
  - —with adolescents
  - —with parents
  - —with families
- Knowledge of psychopathology of children and adolescents
- Knowledge of psychopharmacology
- Knowledge of and ability to use community resources and agencies
- Ability to consult mental health professionals
- Ability to recognize stress or psychopathology in parents
  - —recognition of effect on children and selective forms of psychotherapy
  - —awareness of treatment approaches

- Basic ability to counsel and perform selective forms of psychotherapy (not to include psychoanalytically oriented, uncovering therapy)
  - —Ability to perform counseling
    education
    behavioral managment
    supportive services
    child rearing counseling
  - —Elective option to learn specific brief therapies
  - —Knowledge of indications for specific therapy modalities
  - —Ability to refer for therapy
- Knowledge of special areas of biopsychosocial concern and ability to intervene
  - —eating, sleeping, motility problems
  - —aggressive behavior
  - —death and dying within families
  - —dying child or adolescent
  - —family mourning process
  - —chronic illness
  - —reaction to illness, surgical procedures, hospitals
  - —developmental disabilities
  - —the high-risk infant (coping, psychosocial stress, long-term followup)
  - —separation, divorce, custody, remarriage, alternative families
  - —academic difficulties
  - —sex education
  - —psychophysiologic diseases and conversion reactions
- Ability to function as a school consultant
- Knowledge of developmental disabilities and chronic diseases
- Awareness of the physician as a person
  - —awareness of self and effect on patient, family, practice
  - —awareness of effect of career on family
  - —awareness of roles and responsibilities in community
  - —awareness of interpersonal aspects of working with colleagues, partners, office staff

Mental Health Professionals

The four primary mental health disciplines are psychiatry (including child psychiatry), psychology, social work, and psychiatric nursing. Case work, welfare work, and special education are some related professions.

Number of Professionals

Psychiatry

The current number of psychiatrists is estimated to be 28,000. This figure is about 10,000 fewer than current projected needs. Child psychia-

trists are currently estimated to be 3,000, far too few to even meet minimal needs. A major decrease has occurred in the number of medical graduates who are entering psychiatry as well as in the number of foreign medical graduates training in this country. The potential shortage of psychiatrists and child psychiatrists is a major concern.

Psychology

In 1979 the American Psychological Association estimated that 27,500 doctorate level psychologists were in the health service field. Between 5,000 and 6,000 of them are engaged in providing services for children. Approximately 22,000 counseling psychologists have master's and doctorate degrees; the percent who are trained to work with children is unclear.

Social Work

The profession of social work does not distinguish subspecialties. Therefore, it is not only difficult to obtain an accurate estimate of all psychiatric social workers, but it is also difficult to obtain an estimate of those trained to work with children. Approximately 20,000 social workers with master's degrees work in psychiatric–mental health facilities. The numbers working in health or welfare settings are not available.

Psychiatric Nursing

Exisiting data often define a psychiatric nurse as any nurse working in a mental health facility. These nurses might have a 2- or 3-year training diploma, and either a bachelor's or a master's degree in psychiatric (mental health) nursing. The National Institute of Mental Health defines a psychiatric nurse as one who has a master's or a higher degree. It is estimated that between 5,000 and 7,000 psychiatric nurses have master's degrees. The percent of these nurses who work with children is unknown.

Today a shortage of child psychiatrists and other child mental health professionals, a geographic maldistribution of these professionals, an increased awareness of and need for child mental health services, and a primary health care system that is not yet able to provide the needed health–mental health care of children exist.

Training

General Psychiatry and Child Psychiatry

Completion of medical education is required. Training in general psychiatry requires a 4-year residency period. During this time a minimum of 6 months must be spent working with children. Training must be completed in general psychiatry before 2 years of training in child psychiatry begins. (A combined program of 3 years in general psychiatry and 2 years in child psychiatry is acceptable.)

Psychology

A doctorate in clinical or counseling psychology takes an average of 4–5 years of graduate training. This training includes a 1-year clinical internship. The percent of training spent on research, evaluation, psychological testing, and clinical experiences varies with each program. The clinical intern can train in clinical child psychology.

Social Work

A 2-year master's program is required. During this time each student has one or two field placements. Emphasis is placed on continuing one's training during the first few years of postgraduate employment, and supervision is frequently offered. Training and early employment can be completed with no, little, or extensive experience working with children.

Psychiatric Nursing

A 2-year master's program is required. Some psychiatric nurses have a doctorate degree. The amount of clinical training with children will vary with the program.

Shared and Unique Skills

Each mental health professional shares knowledge in normal psychosocial development and general psychopathology. Whether the professional is skilled in all aspects of diagnosis and individual psychotherapy, group therapy, behavioral therapy, or family therapy depends on his or her training and experiences.

General psychiatrists, because of their medical training, are considered skilled in the diagnostic process, especially when organic, neurologic, and psychosocial factors are involved. Child psychiatrists, like pediatricians, are skilled in diagnosis in the preadult. Like physicians, psychiatrists can write prescriptions, admit patients to hospitals, and manage hospital units.

Psychologists are the only mental health professionals trained to perform psychodiagnostic testing. They are often better trained in normal development than other mental health professionals and are also trained in research and evaluation. Clinical child psychologists perform therapy with children, adolescents, and their families with a range of technical capabilities.

Social workers have a greater knowledge of community systems and agencies and the ability to mobilize such services. Some social workers have had special training in child, adolescent, and family therapy.

Psychiatric nurses are familiar with general medical care and in the use and dispensing of medication. They often work as teachers and supervisors, usually in general or psychiatric hospital settings. Some psychiatric nurses have had special training in child, adolescent, and family therapy.

The most cost- and clinically effective system of care not only utilizes the various shared levels of knowledge and skills of the health and mental health professionals, but also maximizes their unique abilities.

One useful distinction is between the health and the mental health team models. The health team has a physician in charge. Other health professionals and paraprofessionals may work with the team, but the physician has primary responsibility and authority. The mental health team functions differently. The leadership of the team might depend on the function of the team. A child psychiatrist might lead an inpatient treatment or diagnostic team; a psychologist might lead an outpatient treatment team; or a social worker might lead a community-based treatment center. Within the team all disciplines have shared, unique roles. Depending on the activity, a team member might be supervised by the leader or might function independently. Who can do what, where, and with or without supervision will vary from facility to facility.

ISSUES, OPTIONS, AND RECOMMENDATIONS FOR HEALTH–MENTAL HEALTH CARE

Issue: Physical and Mental Health Service Delivery Model

The current national goal is to make primary care central to the delivery of physical and mental health services. In this model, the child psychiatrist and other child-trained mental health professionals provide consultation and liaison services to the primary care physician and provide specific tertiary level care. For this model to be successful the roles and responsibilities for each professional must be clarified and training and continuing education must include the necessary knowledge, skills, and attitudes. A cost-efficient, clinically competent system must guarantee the most efficient use of all mental health professionals as well as assurance that quality of care will not be compromised because of cost.

Ideally, each profession should shift from a professional discipline orientation to a patient-need orientation. Among the various competent professionals and the various potential settings for mental health services, the deciding factors for selection of the most suitable persons and places should be their cost- and clinical-effectiveness. What interventions are best at what level of health delivery system, and who can provide them? What knowledge and skills are needed at each level? Who has these abilities? Such questions could lead to a clarification of professional training needs as well as to the determination of numbers and distribution needs.

Such a rethinking of roles and identity is not easy. Reasons can be found why each profession and specialty evolved as it did. As each profession struggles to reexplore roles and identity, economic as well as status issues interfere with objectivity. The best interest of children and youth should come first; but difficulties arise in being so altruistic. This

struggle exists between family medicine and pediatrics. It also exists within the four mental health disciplines. Which profession can do what? Where? Who can establish a diagnosis? Who can admit to a hospital? Who can peform what treatment? Who needs to be supervised? By whom? Answers to some of these questions (who can prescribe drugs or admit to a hospital?) are dictated by law. Some of these current issues are based on tradition.

Option 1

One approach toward addressing the issues of roles and functions of health and mental health service professionals is to look at levels of emotional stress or psychopathology and to define which professionals could treat children at each level. This approach would suggest the following model:

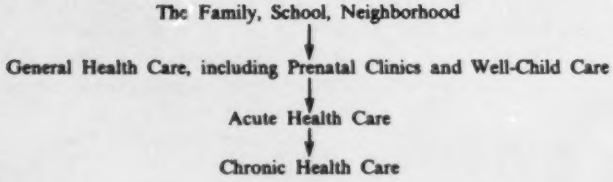
- Level 1: Children with difficulties arising from faulty experiences such as emotional deprivation or family dysfunction
- Level 2: Children with surface conflicts between themselves and parents, siblings, the school environment, and the neighborhood
- Level 3: Children with conflicts that have become inner conflicts and have resulted in neuroses and character disorders.
- Level 4: Children with difficulties arising out of or related to physical disorders (such as metabolic or hormonal disorders and brain dysfunctions)
- Level 5: Children in need of special facilities (such as the mentally retarded and psychotic)

Children at levels 1 or 2 could be treated by most mental health professionals at the predoctorate level and many primary care physicians. Children at level 2 need to work with master's or doctorate level mental health professionals skilled in child psychotherapy including child psychiatrists, many general psychiatrists, and those doctorate level psychologists and other mental health professionals trained in this area. Children at level 4 need to be treated collaboratively by medical and mental health professionals; the type of mental health professional would depend on the additional presence of emotional difficulties as described for levels 1, 2, or 3. The type of professional needed to treat the child in level 5 would depend on the presence of difficulties described in the preceding categories.

Option 2

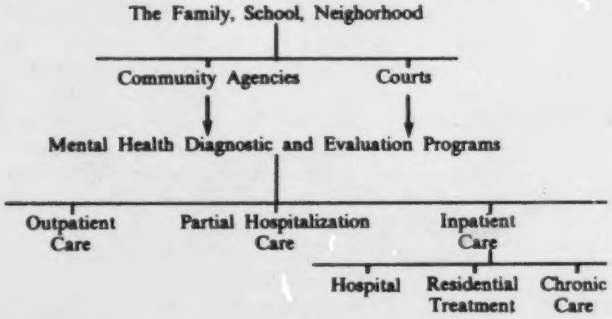
Another approach for determining professional roles and functions is based on the service delivery system as a continuum wherein patients enter the system and penetrate it as deeply as necessary until they obtain appropriate care.

In the health continuum one might conceptualize:


The Family, School, Neighborhood
General Health Care, including Prenatal Clinics and Well-Child Care
Acute Health Care
Chronic Health Care

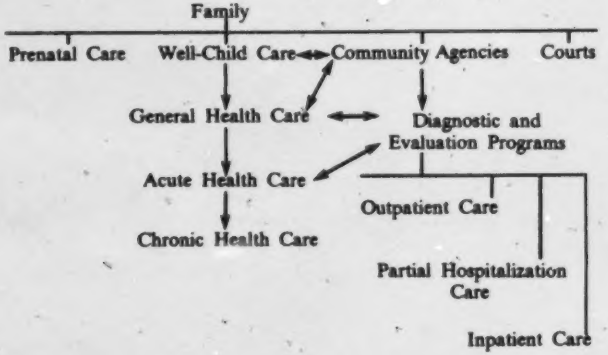
Each of these levels might be private or public; each might be ambulatory or inpatient; each might be a solo practitioner or an organized system (e.g., a health maintenance organization). The types of clinical interventions would vary with each level of care.

The mental health analogue might be conceptualized as follows:



As with the health care continuum, each level might be private or public, a solo practitioner, or an organized group. The types of clinical interventions would vary with each level of care.

Ideally a comprehensive physical and mental health system would allow individuals to move between the two systems as follows:



With such a model several working assumptions exist:

(1) The needs at each level for provision of certain services as well as the necessary access routes and backup support systems could be clarified.

(2) Staffing roles and functions that maximized the unique and shared skills of different health and mental health professionals in a clinically meaningful and cost-effective way could be developed. For example, roles for both health and mental health professionals at each level are found, but the degree of direct versus supervisory–consultative responsibility will vary for each profession as one moves up or down the system.

For each part of the system, different professionals would have shared or unique skills. For example, if a 15-year-old depressed female was seen in a medical setting, the ability to differentiate between depression and hypothyroidism would be shared by the psychiatrist and the primary care physician. If the diagnosis were depression, the development and administration of therapy would be the responsibility of the psychiatrist. If the same patient were seen in a mental health facility such as a community mental health center, the responsibility for diagnosis might be that of the psychiatrist; however, the ability to develop and administer treatment might be shared either with the psychologist or another mental health professional.

Such an effort to clarify unique and shared skills in different parts of the health delivery system is necessary. Only after this is done, can training, staffing, and distribution needs be fully understood or addressed.

Issue: Professional Personnel Needs

In the United States sufficient health promotion, prevention, and clinical care programs exist. The problem is in the systems of care and in the availability of professionals in the health and mental health fields with the appropriate knowledge, skills, and attitudes.

The primary care system has not been as successful in addressing the physical and mental health needs of children as desired. It will not become successful until roles are clarified and programs are established to train their residents to attain certain levels of competence. If family physicians are to address the mental health needs of the country, the mental health care requirements must be fulfilled. A family practice resident cannot receive minimal training in psychiatry and be qualified to provide primary care. Adequate training is necessary because almost two-thirds of the individuals with mental health problems are seen by family physicians. In addition, pediatric education must also be reconsidered and restructured. Another option is to abandon the concept of primary care and return to specialty care. In both options efforts must be made to make primary care successful.

The mental health field must shift from a guild orientation to one that addresses the needs of the country. The maximal use of shared skills in a cost-effective way with a carefully planned use of unique skills is necessary.

Issue: Economics of Primary Care

Major economic, medical, and psychological advantages are derived from performing much of the diagnostic and treatment care of children in an ambulatory setting. Yet, such care is often not fully covered by Federal or third-party plans and can result in unnecessary hospitalization.

In addition, primary care physicians find it difficult to provide mental health diagnostic, counseling, or treatment services under the current reimbursable model. For example, if a usual 5- to 7-minute office visit costs $12–$15, an hour of counseling would cost $100–$150. Considering the average overhead of operating an office, could the primary care physician provide such services for the usual $50–$60 charged by psychiatrists? A reimbursable model for primary care physicians who provide mental health services must be developed.

Furthermore, for primary care physicians to be effective in handling mental health issues, they may need occasional consultation with or supervision by a mental health professional. Who will pay for this nonpatient contact time? When one works with mental health problems, phone consultations, visits to schools, or conferences with agencies often increase. Who will pay for these collateral activities? If psychiatrists and other mental health professionals are needed to train primary care physicians in the area of mental health, who will pay for this teaching time?

Unless these issues are resolved, the primary care physician and mental health professional will not be able to work collaboratively to provide mental health services.

If psychiatrists and other mental health professionals are needed to train primary care physicians in mental health, who will pay for this teaching time? If consultation, liaison, and supervision services are requested by the primary care physician, who will pay for this nonpatient contact time?

Unless these issues are resolved, the psychiatrists and other mental health professionals will not be able to afford to help the primary care physician handle mental health issues.

As with the health professionals, the care provided by mental health professionals is often based more on what facilities exist or what Federal or insurance coverage is available than on what is best for the patient. All would agree that prevention is as important as treating people once they are ill. Not only does prevention reduce illness and the possibility of death but it is also cost efficient. Yet, reimbursement plans do not cover prevention. The absence of or limited mental health coverage of most Federal and third-party carriers must be corrected. The mental health needs of people are as important as the physical health needs, and psychiatric problems should not be handled differently than any other medical problem.

Recommendations

(1) The third-party and Federal reimbursement plans must be modified to encourage the use of ambulatory care whenever

possible. This care is less costly than inpatient care and is less stressful for children and families.

(2) The third-party and Federal reimbursement plans for primary care physicians must be modified to pay not only for the provision of mental health services but also for additional collateral and nonpatient contact time.

(3) The third-party and Federal reimbursement plans for psychiatrists, child psychiatrists, and other mental health professionals must be modified to pay for collateral and nonpatient contact time as well as for time spent consulting with other health professionals who deliver mental health services.

(4) A reimbursement system is needed to cover preventive services directed toward specific individuals as well as toward groups.

(5) The third-party and Federal reimbursement plans must cover patients with psychiatric illnesses as fully as they cover patients with medical or surgical illnesses.

Issue: Legislation

Child Health Assessment Plan

In 1967 Congress attempted to expand Medicaid to do more than simply pay for health services by enacting the Early and Periodic Screening, Diagnosis, and Treatment Act (EPSDT). This program required States to develop programs to periodically screen, diagnose, and treat children for various disorders. Unfortunately, problems with the program occurred: many children were not eligible for EPSDT or Medicaid; little outreach went to those who were eligible; those that did get screened were rarely followed up, and, even if they were, the necessary treatment was not always covered under the State's Medicaid plan. Nationally only one-fourth of eligible children had been screened by the end of 1977. Because of low reimbursement for services and the amount of paperwork required, inadequate numbers of providers were willing to participate. Penalties for States mounting inadequate programs were not enforced.

The Child Health Assessment Plan (CHAP), another attempt to expand the concept of Medicaid, has been introduced each year for the past 3 years. At this time, the bill has passed the House and is in committee in the Senate. The House bill provides for mental health coverage; the Senate bill does not. The key to a meaningful CHAP Act is comprehensive coverage for both health and mental health care without discriminating on the basis of diagnosis. If CHAP is enacted with only physical health coverage, the ability to meet the physical and mental health needs of low-income, poor, and underserved populations will be greatly limited.

Recommendations

(1) The Act should include

- Ambulatory mental health care in clinics, including community mental health centers. (In most States psychiatric services

are already covered as "physician services." Such limitation limits reimbursement for clinics using the other mental health professionals.)

- Emergency crisis intervention services at inpatient psychiatric hospitals. (In most States general hospital psychiatric services are already a mandatory service included in overall general hospital services.)
- A federally defined lower limit on the amount a State can prescribe for payment for mandatory services (e.g., some States limit mental health care to five visits or require prior authorization; neither limitation is true for health care.)

(2) The types of services covered under CHAP should be available for all children and not just for those eligible for Medicaid.

Education for All Handicapped Children Act (P.L. 94-142)

A Federal law now provides for services to children, regardless of handicap, and establishes these services as a right guaranteed by law. The emphasis on early diagnosis and intervention is an important tenet of good health and mental health practices. However, despite the intent, many problems have arisen with the implementation of the law at State and local levels which have led to confusion, frustration, and, at times, hostility among education, health, and mental health professionals.

In fact, the law requires each State to ensure that handicapped children receive a free and appropriate education and not through each State's Department of Education. The public school is responsible for implementing all related services listed on an Individualized Educational Prescription (IEP), but does not have to be fiscally responsible for each service. However, other State agencies (health, welfare, corrections, mental health, mental retardation, and human services) are taking advantage of the ambiguity in interpreting the law by dropping services they provided by assuming that the Department of Education will now cover the cost of such services.

Moreover, misinterpretations of the law by educators, special educators, school boards, parents, and other service providers have led to exaggerated expectations. Some school districts have violated the spirit of the law by purposefully underidentifying or mislabeling children so that they would not be forced to provide programs. Some school districts have tried to implement the law fully and have found that such efforts strained financial and professional staff resources to the limit. Other school districts face the possibility of bankruptcy if they fulfill the understood intent of the law.

The solution to the current difficulty will be to require that each State integrate its health, mental health, and education plans to assign responsibility for a spectrum of services to specific agencies (e.g., psychological therapy, room and board, transportation, administration, recreation, and social systems).

Furthermore, problems of handicapped children do not lend themselves to easy solutions or remedies. Even the simplest handicap can be of complex etiology, involving biological, social, and psychological interac-

tions that defy easy assessment and diagnosis and that call for complicated programs of intervention requiring many resources. Focusing exclusively on the basic educational needs and ignoring the complex etiology of handicapping conditions or family circumstances may be too simplistic or not relevant. Planning must be for the whole child and include his or her family.

P.L. 94–142 should be considered an opportunity to redesign the service delivery system for children and for the sharing of responsibility, authority, and funding.

Recommendations

(1) The State and local advisory committees should include both health and mental health professionals.
(2) The State plans should include interagency agreements between the State departments of education and health and mental health sharing the responsibility for handicapped children, and this requirement should be conditional to the receipt of Federal funds. As part of these agreements, the financial responsibility for "related services" should be clarified and shared by all agencies involved.
(3) Professionals in the health and mental health professions must be trained to work cooperatively with education and special education professionals.
(4) Health and mental health professionals must participate in the training of school staff who work with handicapped children and with health and mental health team members.
(5) Health and mental health professionals must work with normal children and the classroom teachers in helping them understand and accept the handicapped children now in their midst.

Social Security Act

The number and type of mental health services provided for under the Social Security Act vary from State to State and are usually either nonexistent or of limited scope. Under Medicaid, mental health services may or may not be provided at the State's option. Medicaid emphasizes inpatient care, physicians' services, and institutionalization. It restricts services for certain age groups and is replete with restrictions on reimbursement for mental health care. Mental health care also suffers from State-imposed restrictions on coverage. Comprehensive mental health systems such as community mental health centers often are not eligible for reimbursement. Medicaid covers basic or inpatient mental health care only if the services are provided through a general hospital. Psychiatric hospitals, community mental health centers, and free-standing facilities with inpatient units are not reimbursed. This general hospital restriction is also true for outpatient services in most States. Most States only reimburse for outpatient services provided by physicians. It is unreasonable that mentally ill Medicaid eligibles are to a large extent denied freedom of choice regarding treatment facilities; it is illogical to

fully reimburse for psychiatric treatment in general hospitals at costs 40–60 percent higher than those of many free-standing psychiatric facilities. Medicaid also restricts payments in most States for psychiatric diagnoses but pays for medical diagnoses. Although approximately 15 percent of the population needs mental health care, only 4 percent of the Medicaid budget is disbursed for mental health services.

The preceding concerns regarding the Social Security Act related equally to the Indian Health Services (P.L. 83–568), the Community Services Act (Head Start), the Adolescent Health Services (P.L. 95–623), the Child Abuse Prevention and Treatment Act, and the Appalachian Regional Development Act.

Recommendations

(1) Federal regulations should be modified to require mental health coverage. A comprehensive physical and mental health care system is needed that does not discriminate by diagnosis.
(2) State advocates are needed to ensure that such services are provided and that all State health and mental health programs collaborate in a comprehensive care system.

The Future: National Health Insurance

Whatever form National Health Insurance takes, coverage of all health–mental health services is critical to provide comprehensive health care to children. If coverage for mental health services is limited or omitted, neither the primary care physicians nor the mental health professionals will be able to provide needed services. The PCMH underscored this concern with any future form of National Health Insurance. Among the PCMH recommendations, the following, which specifically related to Medicaid (and Medicare), have clear implications for any National Health Plan:

(1) Amend current legislation to
- Establish minimum eligibility standards based on income and assets rather than on categorical requirements so that everyone who satisfied the definition of financial need would be eligible for assistance
- Establish minimum mental health benefits to be included in every State Medicaid plan
- Remove provisions that allow for any discrimination in the allocation of services on the basis of age

(2) Instruct the Secretary of DHHS to ensure that
- States have effective systems to prevent discrimination on the basis of diagnosis
- Mental health services are made available within Medicaid child health programs
- State Medicaid plans offer a reasonable amount of ambulatory mental health services
- State Medicaid reimbursement policies do not limit the availability of mental health services

Research

Basic and applied research that focuses on the cost-effective and clinical competence of health and mental health professionals working in multitiered systems of care is needed for comprehensive health and mental health delivery systems.

Basic data are also needed on the number of individuals treated and types of services required in the many health and mental health facilities existing throughout the country. A national network of epidemiological and biometric data collection is also needed to analyze the incidence and prevalence of physical and mental health disorders.

SUMMARY OF SPECIAL HEALTH–MENTAL HEALTH NEEDS OF CHILDREN

(1) Service delivery
- Prevention: A major focus in clinical practice and in public education must be health–mental health promotion as well as all levels of prevention efforts.
- Clinical care: A comprehensive continuum of health and mental health care delivery is needed. Such a system must be accessible to all and should encourage health–mental health linkages whenever possible.
- Advocacy: Coordinated efforts are needed within and between Federal departments as well as within each State to ensure the maximal cooperation and utilization of funds, programs, and services for children. A formal Federal and State child advocacy system can best address these needs.

(2) Primary care
- The physical and mental health care of children should be provided by primary care physicians in collaboration with other health and mental health professionals.
- The roles and functions of the primary care physician must be clarified for each level of care delivery.
- Training programs for primary care physicians must be designed to address their defined roles and functions in meeting the health needs of the country.

(3) Economics of health–mental health care
- Federal and third-party coverage plans and any forms of national health insurance must adequately reimburse primary care physicians for mental health services as well as for time needed for training and supervision in performing these services.
- Federal and third-party coverage plans and any forms of national health insurance must adequately reimburse psychiatrists and other mental health professionals for time spent teaching, supervising, or providing liaison services to primary and general health care physicians.
- Medicaid and other Federal plans must finance total health care and not selectively discriminate against mental illness

diagnoses, certain inpatient delivery systems, or ambulatory care.

- Third-party carriers must cover total health care and not selectively discriminate against mental health diagnoses, certain inpatient delivery systems, or ambulatory care.

(4) Legislation

- The Child Health Assessment Plan (CHAP) must be passed with comprehensive health and mental health coverage.
- Federal regulations for Titles V, XIII, and XIX of the Social Security Act must be modified to set both the lower and upper limits of State funding of mental health services as well as to eliminate current discrimination against psychiatric diagnoses, places for inpatient treatment, ages covered, or ambulatory care.
- Through amendments to the Social Security Act or through new legislation, a Federal, State, and Federal-State system of child advocacy should be established to ensure a comprehensive health and mental health care system.
- Under P.L. 94–142, the U.S. Bureau for the Education for the Handicapped must clarify the roles of health and mental health professionals and assist in clarifying the financial responsibility for "related services."
- Under P.L. 94–142, the State must include members of both the health and mental health professionals on the State and local advisory committees.
- The State must develop written interagency agreements between the State Departments of Education, Health, and Mental Health regarding the cooperative responsibility for the health and mental health care of children.

(5) Research

- More basic and applied research is needed in the biopsychosocial areas of health promotion, somatic illnesses, and psychiatric illnesses.
- Basic and applied research into models of comprehensive health–mental health delivery systems is needed, focusing on the maximal use of health and mental health professionals needed to provide clinically competent and cost-effective care.

REFERENCES

(1) Shore, M. F. and F. V. Mannino. "Mental Health Services for Children and Youth: 1776–1976." *Journal of Clinical Child Psychology* 5: 21–25, Winter 1976.

(2) Alcohol, Drug Abuse, and Mental Health Administration. *Report of the ADAMHA Manpower Analysis Task Force.* Washington, D.C., May 1978.

(3) National Institute of Mental Health. *Community Mental Health Centers. The Federal Investment.* Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (ADM) 78–677, September 1978.

(4) National Institute of Mental Health. *A Study of Deficiencies and Differentials in the Distribution of Mental Health Resources in Facilities.* Washington, D.C.: U.S. Government Printing Office, Series B, No. 15. DHEW Publication Number (ADM) 79–517, 1979a.

(5) Joint Commission on Mental Health of Children. *Crisis in Child Mental Health: Challenge for the Seventies.* New York: Harper and Row, 1969.

(6) Joint Commission on Mental Illness and Health. *Action for Mental Health.* New York: Basic Books, 1961.

(7) Haggerty, R. J., K. H. Roghmann, and I. B. Pless. *Child Health and the Community,* pp. 94–95. New York: John Wiley and Sons, 1975.

(8) American Academy of Pediatrics. *The Future of Pediatric Education. A Report by the Task Force on Pediatric Education,* Evanston, Ill., American Academy of Pediatrics, 1977.

(9) Regier, D. A. and I. D. Goldberg. "The DeFactor U.S. Mental Health Services System. A Public Health Perspective." *Archives of General Psychiatry,* 35: 685–693, June 1978.

(10) Shepherd, M., B. Cooper, A. C. Brown, and G. W. Kalton. *Psychiatric Illnesses in General Practice.* London: Oxford Univ. Press, 1966.

(11) Starfield, B., E. Gross, M. Wood, R. Panell, C. Allen, I. B. Gordon, P. Muffatt, R. Drachman, and H. Katz. "Psychosocial and Psychosomatic Diagnoses in Primary Care of Children." *Pediatrics,* in press.

(12) Berns, B. J., C. L. Orso, and A. M. Jacobsen, *et al.* Bunker Hill Health Center of the Massachusetts General Hospital, Boston, Massachusetts. In *Utilization of Health and Mental Health Outpatient Services in Four Organized Health Care Settings.* I. D. Goldberg, D. A. Regier, eds. National Institute of Mental Health, Series B, No. 17. DHEW Publication Number (ADM) 79–859, in press.

(13) Shapiro, S., J. R. Hankin, and D. M. Steinwachs. Columbia Medical Plan, Columbia, Maryland. In *Utilization of Health and Mental Health Outpatient Services in Four Organized Health Care Settings.* I. D. Goldberg, D. A. Regier, eds. National Institute of Mental Health, Series B., No. 17. DHEW Publication Number (ADM) 79–859, in press.

(14) Hooper, E. W. and G. R. Nycz. Greater Marshfield Community Health Plan and Marshfield Clinic Fee-for-Service population, Marshfield, Wisconsin. In *Utilization of Health and Mental Health Outpatient Services in Four Organized Health Care Settings.* I. D. Goldberg, D. A. Regier, eds. National Institute of Mental Health, Series B, No. 17. DHEW, Publication Number (ADM) 79–859, in press.

(15) Prugh, D. G., E. M. Staub, H. D. Sands, R. M. Kirschbaum, and E. A. Lenihan. "A Study of the Emotional Reactions of Children to Hospitalization and Illness." *American Journal of Orthopsychiatry,* 23: 70–106, 1953.

(16) Prugh, D. G. and L. D. Eckhardt. "Children's Reactions to Illness, Hospitalization, and Surgery." In *The Comprehensive Textbook of Psychiatry,* pp. 2100–2107. Second Edition, A. M. Freedman, H. I. Kaplan, and B. J. Sadock, eds. Baltimore: Williams and Wilkins, 1975.

(17) Jessner, L. and S. Kaplan, "Observations on the Emotional Reactions of Children to Tonsillectomy and Adenoidectomy." In *Problems of Infancy and Childhood,* M. J. E. Senn, ed. New York: Macy Foundation, 1948.

(18) Vernon, D. T. A., J. L. Schulman, and J. M. Foley. "Changes in Children's Behavior After Hospitalization." *American Journal of Diseases of Children.* III: 581–593, June 1966.

(19) Shore, M. F., ed. *Red is the Color of Hurting: Planning for Children in the Hospital.* Washington, D.C.: U.S. Government Printing Office, 1966.

(20) Shore, M. F. and S. E. Goldston. "Mental Health Aspects of Pediatric Care Historical Review and Current Status." In *Psychological Management of Pediatric Problems,* P. Magrab, ed. Baltimore: University Park Press, 1978.

(21) National Institute of Mental Health, *Mental Disorders and Primary Medical Care: An Analytic Review of the Literature.* Washington, D.C.: U.S. Government Printing Office, Series D., No. 5. DHEW Publication Number (ADM) 78–661, 1979b.

(22) President's Commission on Mental Health. *Report to the President from the President's Commission on Mental Health.* Volume I, Washington, D.C.: U.S. Government Printing Office, 1978.

(23) American Medical Association, *Directory of Accredited Residencies 1979–80.* Chicago: American Medical Association, 1979.

SECTION V

PLANNING AND ADMINISTRATION

TITLE V
THE MATERNAL AND CHILD HEALTH AND CRIPPLED CHILDREN'S SERVICES SECTION OF THE SOCIAL SECURITY ACT: PROBLEMS AND OPPORTUNITIES

by
LORRAINE V. KLERMAN, D.P.H.

INTRODUCTION

Since the turn of the century this Nation has assumed a special responsibility for the health and welfare of its children. Theodore Roosevelt's convening of the first White House Conference on Children in 1909; the establishment of the Children's Bureau in 1912; and the passage in 1921 of the Sheppard-Towner Act, which initiated a Federal-State maternal and child health program, were all steps toward the enactment in 1935 of the major piece of legislation that is the focus of this paper: Title V of the Social Security Act.

In the 45 years that have elapsed since 1935, this country's system for the delivery of health services has undergone major modifications. The role of the Federal Government in either directly providing or funding services has grown enormously. More than 600 federally supported community health centers and other primary care facilities[1] serve millions of disadvantaged individuals, a large percentage of whom are children or women with fertility-related needs. Medicaid and Medicare finance the services of physicians, hospitals, and other providers. Both directly and through its Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program, Medicaid probably affects more children than any other public medical program.

Federally supported training programs have produced new categories of personnel to serve women and children: pediatric nurse practitioners,

[1]As of January 1980—158 Community Health Centers, 397 Rural Health Initiative and 77 Urban Health Initiative projects, and 39 Migrant Health Centers.

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child health associates, and physician's assistants, to name a few. The National Health Service Corps has placed a variety of health practitioners in medically underserviced areas. An expanded Federal research budget has made possible scientific advances—such as new immunization materials, innovative forms of corrective surgery, and life-saving procedures for immature and defective infants—which have changed the delivery of services.

Innovations have not been limited to the agencies that traditionally have assumed responsibilty for health care. The educational establishment, for example, has undertaken a major role in ensuring the delivery of appropriate care through the enactment of Public Law 94–142, the Education for All Handicapped Children Act. Similarly, nutritional programs such as the Special Supplemental Food Program for Women, Infants, and Children (WIC), and the School Breakfast and Lunch programs have brought the Department of Agriculture into the health field.

Despite this increased Federal participation in health care, the structure of Title V has remained basically unchanged. Its charge today is quite similar to that of 1935.[2] The current law authorizes appropriations:

> For the purpose of enabling each State to extend and improve (especially in rural areas and in areas suffering from severe economic distress), as far as practicable under the conditions in such State, (1) services for reducing infant mortality and otherwise promoting the health of mothers and children, and (2) services for locating, and for medical, surgical, corrective, and other services and care for and facilities for diagnosis, hospitalization, and aftercare, for children who are crippled or who are suffering from conditions leading to crippling.

Although the Federal Government increasingly has targeted its medical care dollars at specific populations and geographical areas, Title V's formula grant mechanism has allowed the States to make most decisions about the services to be provided and the populations to be served with minimum Federal direction. Such a policy may encourage innovative leadership within States, but it also can result in nonresponsiveness and stagnation.

CURRENT OPERATION OF TITLE V

Title V functions under an ongoing authorization, but every year Congress must appropriate funds specifically for its programs. (Since 1976 the amount has been over $300 million; the President's fiscal 1981 budget requested $394 million.) Most of these funds, over 85 percent, are distributed directly to the States[3] through a series of formulas written into the statute, hence the term "formula grant." Some funds, however, are

[2]For comparison, see Appendix A.

[3]Title V funds also go to the District of Columbia, American Samoa, Guam, the Northern Marianas, Puerto Rico, the trust territories, and the Virgin Islands. In this report, the words "States" and "State Title V agencies" will be used to include these jurisdictions and the Title V agencies serving them.

retained at the Federal level for discretionary use by the agency that administers Title V funds.

The Title V program originally was administered by the Children's Bureau. This linked the program to child welfare services and provided access to decisionmakers in Congress and the Administration. Currently Title V is administered by the Office for Maternal and Child Health (OMCH), one of several program offices within the Bureau of Community Health Services.[4] This administrative structure was designed to encourage better integration of Government-funded health service delivery systems such as community health centers, family planning, the National Health Service Corps, and maternal and child health programs. Unfortunately, this integration has been achieved at the cost of diminished visibility of Title V.

Distribution of Appropriation

An awareness of the method by which Title V funds are distributed is essential to an understanding of the problems and potentials of the program. The legislation allows 10 percent of the total appropriation to be used for training and research projects, but the Secretary[5] may transfer up to 5 percent for other purposes. (In 1980, 8.4 percent of Title V funds were allocated to research and training through Sections 511 and 512.) Training and research funds are distributed directly to public or nonprofit private institutions of higher learning by OMCH. Research funds may also go to public or nonprofit private agencies and organizations.

The remaining funds, usually slightly in excess of 90 percent of the total appropriation, are divided by Congress into a portion for Maternal and Child Health Services (MCH) and a portion for Crippled Children's Services (CCS). The maternal and child health allotment is divided equally into Fund A and Fund B. Fund A is entirely distributed to States. Each State receives an allotment of $70,000 plus that portion of the remaining amount that equals the proportion of the number of live births in the State relative to the total number of live births in the country. Federal money received through Fund A must be matched dollar-for-dollar by the States.

Five million dollars of MCH Fund B are used for special projects for mentally retarded children. Up to 25 percent of the remainder of Fund B can be retained at the Federal level by OMCH for grants to State agencies and to public or other nonprofit institutions of higher learning for special projects of regional or national significance that may contribute to the advancement of maternal and child health. This is called the MCH Reserve B Fund. The remaining portion of Fund B is apportioned among the States according to each State's need for financial assistance in carrying out its State plan, and considering the number of live births and per capita income in each State. The apportionments vary directly with

[4]The Bureau of Community Health Services is in the Health Services Administration, which is a component of the Public Health Service within the Department of Health and Human Services.

[5]Throughout this report "the Secretary" refers to the Secretary of the former Department of Health, Education, and Welfare or the current Department of Health and Human Services.

the number of live births in the State, rural births are given twice the weight of urban births; and inversely with State per capita income. Fund B does not have to be matched by the States.

The same basic method is used to distribute crippled children's funds, but instead of the number of live births, the number of children under 21 years of age is used. (The law says the Secretary should take into consideration the number of crippled children in need of services in each State, but the regulations say that because adequate statistics on the number of crippled children are not available, the number of children will be used as an index.) Some States also receive a supplemental allotment under the provisions of Section 516 of Title V (see below). In 1980, States received over $300 million from Maternal and Child Health and Crippled Children's Service formula grants and 516 funds:

Allotment	Millions of Dollars
MCH formula	195.2
CCS formula	86.1
516 funds	18.8
Total	300.1

In addition to the formula grants and 516 funds, OMCH distributed almost $80 million to State agencies and to public or other nonprofit institutions, agencies, and organizations from Reserve B, research, and training funds:

Type of Fund	Millions of Dollars
Training	26.5
Reserve B-MCH	24.4
Reserve B-CCS	11.0
Mental retardation-MCH	5.0
Mental retardation-CCS	5.0
Research	5.3
Total	77.2

Maternal and Child Health: Funds and Services

MCH funds are used both for a variety of conventional activities with origins in the earliest days of the program and for special projects developed in the 1960's.

Conventional Activities

Until the mid-1960's most MCH funds were used by States directly and through allocations to local health departments and other agencies for a wide variety of activities, but primarily with a preventive rather than a curative emphasis. Included in these activities were prenatal clinics, maternity-nursing services, well-child conferences, immunization pro-

grams, school health programs, and various screening programs. The care of the ill child generally was considered to be the responsibility of the private sector, although some departments operated pediatric clinics. Most services were provided by salaried staff or consultants employed by public agencies, but some States paid private practitioners and inpatient costs. Services generally were provided almost exclusively to low-income families.

Because of the absence of uniformity among the States, one could not refer to a maternal and child health program. There were as many maternal and child health programs as there were States. This situation existed because neither Title V nor its associated regulations specified that certain maternal and child health services were to be provided. Each State was required to have a State plan and the receipt of Federal Title V funds was contingent on the approval of such a plan by the Secretary or his designate. But each State determined the format of its plan and the content of its maternal and child health program, with consultation from regional office staff. The required elements of the plan were largely administrative in nature.

Project Grants

A new era in maternal and child health services began in 1963 when Title V was amended to enable the Federal Government to make project grants to State and local health agencies and other public or nonprofit organizations. Although project grants already were being made on a small scale through Reserve B Funds, the impetus for an enlarged project grant authority came primarily from the report of the President's Panel on Mental Retardation. The report suggested that adequate prenatal care was one of the few measures available to reduce the incidence of mental retardation and other handicapping conditions. Because the existing State maternal and child health programs did not appear to provide adequate prenatal services, the Congress added Section 508, "Special Project Grants for Maternity and Infant Care" to Title V. Although States had to consent if funds were given to other agencies, most Maternity and Infant Care (MIC) projects were awarded to local health departments serving areas of special need, usually those with high rates of infant mortality. MIC projects were developed in many urban centers including New York, Chicago, Denver, and Los Angeles. This method of allocating funds, with little State participation, seemed very promising in terms of making certain that those in need received services despite low income, the absence of private physicians, or the reluctance of State health departments to initiate or expand treatment programs.

The project model was used again in 1965 when Section 509, "Special Project Grants for the Health of School and Preschool Children," was added to Title V, and medical schools and teaching hospitals were made eligible for grants. The MIC projects were to provide care both for prospective mothers and infants during their first year and for family planning services. The Children and Youth (C&Y) projects were to promote the health of children of school or preschool age, particularly in

areas with concentrations of low-income families.[6] Later, special project grants were instituted in the area of children's dental health (Section 510).

In 1967, Congress decided to "fold into" the State formula grants, the funds that were being allocated for the special projects. Originally this was to take place in 1973, but the date was extended to 1975. Congress also decided that every State should have these special projects. Thus, as of July 1, 1974, for the first time specific maternal and child health programs were required of all States. Each was to have a "Program of Projects" in all of the following areas: maternity and infant care, intensive infant care, family planning,[7] health of children and youths, and dental health of children. Many States already had federally funded projects in one or more of these areas, but almost all had to develop some new program to meet the Program of Projects requirement. Most States did not develop a statewide Program of Projects in each area; a single project in each of the areas was interpreted as meeting the requirement.[8] Thus, although the Program of Projects increased the maternal and child health services available in each State, the distribution of such services was uneven. The geographic area or areas in which the project or projects were located (usually the areas of greatest need in the State) received augmented services, but other areas did not benefit. The Program of Projects in most States was a series of demonstration projects rather than statewide improvements in services, although the latter probably was the congressional intent.

In order to continue to assist the projects previously supported by project grants and to make it possible for States without such projects to develop them, the Congress added to the MCH formula funds not only all the funds previously distributed by project grants ($111.3 million in 1974), but supplemental funds as well. The MCH formula grant funds jumped from $50.6 million in 1974 to $163.9 in 1975 plus $25 million in supplemental funds (see below).[9] These supplemental funds were needed because the Title V formula itself had not been changed and its rural emphasis would have sent a large proportion of the enlarged formula funds to rural States, many of which had not received project grants. If no modification had been made, many of the urban States that had received project grants would have received less in 1975 through the formula grants—despite the increased total appropriation—than they had received by the formula grant plus the project grants in the previous year. To avoid this, the supplemental allotment section (516) was added to Title V. This

[6]Although the Office of Economic Opportunity was not established until 1964, concern about the problems of poverty and their relation to health were receiving increased interest in the early 1960's. This concern, and the perceived need for local community action, probably contributed to the development of the MIC and C&Y project mechanism.

[7]The current law states that not less than 6 percent of the Title V appropriation shall be available for family planning services.

[8]For a critique of State planning in this area, see: Government Accounting Office: *How States Plan For and Use Federal Funds to Provide Health Services.* December 9, 1975 (MMD-75-85).

[9]Although the total amount available for programs increased by only $27 million, the amount available directly to State health departments through the formula rose sharply. All MCH formula and Section 516 funds go to State health departments; only a fraction of the project grants had gone to State health departments.

section provided that no State should receive less through the MCH and CCS formula grants than it had received from these two grants plus the project grant in 1968. Section 516 provided the State with the difference between these two amounts. This arrangement has created problems for the so-called "516 States" because they cannot receive an increase in combined maternal and child health, crippled children's services, and supplemental funds until Congress appropriates sufficient funds so that, through the formula alone, they will be receiving more than they did in 1968 through formula plus project grants. Thus in 516 States, any increase in CCS funds means a decrease in MCH funds. As of 1980 there were nine 516 States.[10] Estimates indicate that Title V funds will have to be more than doubled before the last 516 jurisdiction, the District of Columbia, no longer will need the supplemental allotment.

1974		1975	
MCH Formula	50.6 million	MCH Formula	163.9 million
Project Grants	111.3 million	Section 516	25.0 million
Total	$161.9 million	Total	$188.9 million

The project grants and their successor, the Program of Projects, were significant for many reasons. First, they struck a blow at the traditional separation between prevention and treatment. Maternity and Infant Care, Children and Youth projects, Dental Health, and Infant Intensive Care projects were not just to prevent sickness or to detect conditions, they were to treat them. Maternal and child health services were no longer largely preventive in nature. The Program of Projects brought maternal and child health into the medical care field.

Second, attempts were made to evaluate many of the projects, particularly MIC, C&Y, and Infant Intensive Care. The evaluations indicated that these projects generally were successful: infant mortality declined, children's conditions were found and corrected, and low-birth-weight infants survived. Although it could not be proven definitely that these projects led to the improvements—areas without the projects also showed gains, and other factors such as improved economic conditions and the availability of family planning and Medicaid services also played a role—most experts felt they contributed significantly. Questions began to be raised about the effectiveness of more traditional maternal and child health services.

Third, the Program of Projects signaled a marked change in Title V. For the first time specific programs were required. Although still retaining a great deal of freedom in developing their programs, the States were required to have at least one each of five types of programs as a condition of receiving formula funds.

Use of Funds

In fall 1978, the General Accounting Office (GAO) distributed to all States a questionnaire on maternal and child health programs. Forty-nine

[10]Colorado, the District of Columbia, Hawaii, Illinois, Maryland, Massachusetts, Nebraska, New York, and the Virgin Islands.

States and the District of Columbia responded; Illinois did not. According to the GAO calculations, in fiscal year 1978 the States and the District of Columbia budgeted $200.4 million in Federal Title V MCH formula and Section 516 funds: $108.1 million for the Program of Projects and $92.3 million for other activities. (Approximately $10.2 million of fiscal year 1978 maternal and child health funds are not accounted for in the GAO study. Much of this probably is due to Illinois' failure to report. The study did not request information on crippled children's service programs.) The C&Y and MIC projects were the most expensive items within the Program of Projects.

Children and Youth	$48,019,736
Maternity and Infant Care	42,444,561
Family Planning	7,146,834
Intensive Infant Care	7,121,552
Children's Dental Health	3,351,315

The next largest State agency expenditure of Title V formula funds was "Funds for local health departments for delivering such services as prenatal care, family planning, infant care, and health education." The total funding allocations, as reported to GAO, were as follows:

Program of Projects	$108,083,998
Funds for Local Health Departments	31,700,989
Funds for Private Contractors or State Employees to Deliver Services	22,869,604
General Administration of MCH Program	20,759,320
In-Hospital Care of Mothers or Newborns	2,925,241
Provision of Training	1,149,821
Research	69,320
Other Special Programs	12,793,705
Total	200,351,998

This analaysis was performed by the GAO for a special study of pregnancy outcome (*1*). No ongoing system collects information on the use of maternal and child health funds using the categories discussed above.

Reserve B Projects

Congressional termination of specific project grant authority eliminated one mechanism by which OMCH could directly influence maternal and child health services in the States. The large increase in the total Title V appropriation caused by the "folding in" of the project grants, however, also resulted in a significant increase in the MCH Reserve B funds (from $5.5 million in 1974 to $24.4 million in 1980) and a corresponding

broadening in the ability of OMCH to use the increase to influence service delivery. The most expensive and extensive of the new Reserve B fund endeavors are the Improved Pregnancy Outcome (IPO) and Improved Child Health (ICH) programs. These have a significantly different focus than the MIC and C&Y projects. First, these Reserve B projects are not specified in the law. Second, instead of emphasizing the direct provision of services, the IPO and ICH stress the need to plan and coordinate existing services in their respective areas, to educate staff, to develop systems, and only if necessary, to provide services. Third, the IPO and ICH are given exclusively to States, along with technical assistance, to strengthen their capacity to ensure that necessary services are provided. Other MCH Reserve B projects include support of adolescent programs, specialized clinics, and maternal and child health training in schools of public health.

Numbers Served

No data system routinely collects information on the numbers of women and children served by State Title V agencies using Title V maternal and child health funds. Such a system would be difficult to develop because of the following:

(1) The variety of ways State Title V funds are used—to provide services directly, to support local health departments that provide services, to pay for services provided privately, and others
(2) The separate funding mechanisms—formula grants, project grants from Reserve B funds, training grants with a service component, and others
(3) The multiple funding sources for some programs—Federal Title V funds, matching State funds, Medicaid, and others

Three systems provide some information about the number of people served and/or the number of services received in the States: (1) the Maternal and Child Health Services (MCHS) Statistical Series, (2) the National Public Health Program Reporting System (NPHPRS), and (3) the Bureau of Community Health Services Common Reporting Requirements (BCRR). None of these three sources distinguishes among services provided using Title V formula funds exclusively; services provided using Title V formula funds in combination with other Federal, State, and local funds; or services provided using State and local funds only.

MCHS Statistical Series

The MCHS Statistical Series was a program of the Federal Title V agency. The data collection system was begun early in the history of Title V, and reports entitled the *Maternal and Child Health Services of State and Local Health Departments* were issued yearly from 1964 to 1973, when they were eliminated by the FAST Commission in an attempt by the Nixon administration to reduce the burden on State governments. Some

States,[11] however, have continued to complete and submit the forms, and examples of data for fiscal year 1976 show the following results (*2*):

Maternity Services	Population Served
Medical clinical	413,423
Nursing	563,586
Inpatient care	21,993
Family planning	1,176,698
Services to Children	**Population Served**
Well-child conferences	1,887,925
Nursing	2,848,612
Inpatient care	
—Premature infants	7,346
—Other children	28,763
General pediatric clinic	450,437
Dental treatment	1,007,257
School Health	**Population Served**
Physician examination	1,501,187
Visual screening	8,358,455
Audiometer screening	6,030,562
Dental	1,777,722

The usefulness of these figures is questionable because several States did not report and definitions of service populations vary among the States. In some categories it is uncertain whether patients in the Program of Projects are included. As previously noted, these figures include maternal and child health services supported not only by Title V funds, but by Federal funds other than Title V and by local funds. (Because some of the State and local funds must be made available in order to match the money in Fund A, the services are indirectly attributable to Title V.)

National Public Health Program Reporting System

The National Public Health Program Reporting System (NPHPRS) was initiated in 1970 by the Association of State and Territorial Health Officials under a contract from the Public Health Service. Its reports focus on the services, expenditures, and programs of State health agencies. The Maternal and Child Health Program Analysis includes family planning, WIC, and EPSDT, as well as general maternal and child health services. The data, therefore, cannot be considered as providing information on services offered exclusively through Title V funding.

For fiscal year 1978 NPHPRS reported that almost 16 million individuals received maternal and child health services from State health agencies (*3*). These services included both those performed directly by the State health agency and those carried out by local health departments

[11] Seven States did not report at all, but estimates of their service populations are included in the published report. In other States, reports do not include those served in certain cities, counties, or hospitals.

with the fiscal support and guidance of the State agency. Funding for these services came from multiple Federal sources as well as State, local, and other funds. Persons served through MIC, C&Y, and other projects in the Program of Projects should have been included in these figures, but the NPHPRS staff is uncertain as to whether this procedure was followed in all States.

Type of Service Provided	Thousands of Persons
Total	15,869
Health screening	12,042
Immunization	919
Dental services	972
Family planning	2,712
Maternity services	495
Genetic counseling	16
WIC nutrition services	1,863
Mental health	11
Mental retardation	24
Alcohol abuse	1
Drug abuse	1

Clinic, Outpatient, and Other Ambulatory Services	Thousands of Persons
Infant and child health	1,788
Crippled children	1
Tuberculosis	#
Venereal disease	3
Chronic disease	7
General ambulatory care	82
Other	204
Home health care	2
Renal dialysis	9
Inpatient care	50

NOTES:
Figures for individual types of service for each program category add to more than total, since total represents estimated unduplicated count for each program.
= less than 500.

In 1977 the NPHPRS, in collaboration with the Bureau of Community Health Services, developed a Maternal and Child Supplement. States were requested to provide information about the following:

(1) The number of users and encounters for selected maternity and child health services
(2) The number of users of early identification and followup services for preschool-age children and school-age children
(3) The immunization status (by type of immunization) of children who turned 2- and 5-years-old during the reporting period and who received any child health services
(4) Admission and discharge data on infants served by Intensive Infant Care projects

The second report based on the Supplement covers fiscal year 1978 (*4*). It includes "services described and documented in the State Plan for Maternal and Child Health required by Title V, Section 505 of the Social Security Act, excluding the program-of-projects except Intensive Infant Care Projects." The report describes "selected services provided, arranged for, or purchased by staff of state or local public health agencies, regardless of whether or not Title V funds were expended for them." Because one-third or more of the States are still not reporting in many of the categories, the data are not presented here. The NPHPRS staff anticipates that in another year or two all or most of the States will provide the information requested.

Bureau of Community Health Services Common Reporting Requirement

The Bureau of Community Health Services Common Reporting Requirement system was developed to satisfy Federal needs for management data on the programs of the Bureau of Community Health Services including the Community Health Centers, Family Planning, Health Underserved Rural Areas, Migrant Health, the National Health Service Corps, and Home Health Services. Four projects within Title V's Program of Projects—Maternity and Infant Care, Children and Youth, Children's Dental Health, and Family Planning—are also included. (The Intensive Infant Care projects report through NPHPRS.) BCRR forms provide information on the number of users and limited data on client characteristics and type of services provided. Data for calendar year 1978 for the two largest projects, MIC and C&Y, are shown in table 1.

In 1979, BCRR added a report on clinical services in an attempt to measure primary care effectiveness. Six clinical indicators of medical care quality were selected for reporting: immunization, prenatal care, family planning counseling for adolescents, Pap smear followup, hypertension screening, and anemia screening. Most of these indicators are applicable to children and to women of childbearing age, so the addition of this component should make BCRR more useful for maternal and child health purposes.

Other Services

As the GAO accounting makes clear, a large proportion of MCH funds are not used to provide service directly to women and children, or even to reimburse providers of such services. None of the reporting systems adequately reflects the importance of so-called "administrative functions." These functions include establishment and enforcement of standards, health promotion activities, consultation with other agencies, development and implementation of interagency agreements, education of personnel, and similar activities. In addition, in some States Title V funds are used to pay for newborn screening; laboratory testing; biologicals for immunization; Rh immunization for women; and collection, analysis, and publication of vital statistics.

TABLE 1. Number of Users, 1978 Calendar Year, by Type of Provider, Age, and Sex[1]

Age and Sex	Maternity and Infant Care Users by Type of Provider			Children and Youth Projects Users by Type of Provider		
	Medical	Dental	Other Health	Medical	Dental	Other Health
Female						
Under 1 year	52,478	78	39,696	25,630	1,252	16,148
1–4 years	7,150	410	7,525	62,415	9,880	42,059
5–12 years	3,714	906	2,871	92,984	33,086	65,395
13–17 years	44,735	6,700	41,105	33,058	10,497	20,532
18–20 years	72,147	9,737	61,277	9,195	2,678	5,947
21–34 years	137,447	19,741	107,816	1,197	330	1,171
35–44 years	12,816	1,026	8,367	255	97	200
45–64 years	1,681	108	701	231	77	129
65 years and over	201	23	74	151	33	97
Subtotal	330,608	40,027	283,759	200,100	52,913	137,296
Male						
Under 1 year	49,699	28	36,165	23,231	314	16,349
1–4 years	6,742	364	5,327	61,977	8,424	43,449
5–12 years	1,191	337	337	68,500	24,473	53,150
13–17 years	531	122	155	28,393	9,705	15,602
18–20 years	175	34	21	4,832	1,925	2,856
21–34 years	379	82	64	367	147	224
35–44 years	115	19	21	97	45	53
45–64 years	187	31	45	103	32	42
65 years and over	76	9	13	66	11	23
Subtotal	59,217	1,026	42,267	187,576	45,076	131,749
Total	390,894	41,053	325,099	388,751	98,876	270,734

[1] Some of the reported users would appear ineligible for these projects: for MIC, females who are neither under age 1 nor in the childbearing ages (13–44), and males not under 1; and for CSY, females and males not under age 21. The reasons for this are unclear.

Crippled Children's Services: Funds and Services

Although the Federal regulations that govern Title V do not provide a "required content" for Maternal and Child Health Services, they do specify such for Crippled Children's Services (CCS). Provision must be made for the following:

(1) Services for the early identification of children in need of health care and services
(2) Diagnosis and evaluation of the condition of such children
(3) Treatment services including at least appropriate services by physicians, appliances, hospital care, and aftercare as needed
(4) The development, strengthening, and improvement of standards and services for crippled children

Children in 125 diagnostic categories may receive assistance through the State Crippled Children's Services agency. Each State determines the conditions for which it will provide services,[12] and sets its own financial eligibility criteria, aside from diagnosis. Diagnostic services must be available without charge, regardless of ability to pay, and without a requirement for referral by an individual or agency.

Use of Funds

No special report (such as the GAO report on maternal and child health funds) or ongoing data source has been located that provides information on how State agencies use Crippled Children's Services formula funds.

Reserve B Projects

Crippled Children's Services Reserve B funds, like Maternal and Child Health Reserve B funds, have increased substantially: from $6.9 million in 1974 to $11.0 million in 1980. These funds are used to support a variety of State clinical programs for children with physical and other handicaps, as well as Interagency Collaborative Grants to develop programs with State educational authorities. Over half of the CCS Reserve B funds are used for training programs.

Numbers Served

The MCHS Statistical Series also collected data on Crippled Children's Service programs. Its last report (*5*) was issued for fiscal year 1973, at which time the States reported that 513,130 children were served, or 6.3 children per 1,000 under age 21.

CCS Program	Number of Children Served
Clinic services	373,336
Other services by physicians	136,192
Hospital inpatient services	84,324
Convalescent home care	4,625
Total	513,130

The NPHPR[illegible] in its overall report for fiscal year 1978 provided the following data on crippled children's programs.

Type of Service Provided	Thousands of Persons
Health screening	548
Immunization	10

[12]According to OMCH, all CCS programs include services for handicaps that need orthopedic treatment or plastic surgery, such as cleft lip, cleft palate, club foot, chronic conditions affecting bones and joints, paralyzed muscles, or cerebral palsy; and nearly all programs include services for rheumatic and congenital heart disease, epilepsy, cystic fibrosis, blood disorders, and hearing and vision problems requiring surgery.

Type of Service Provided	Thousands of Persons
Dental services	17
Genetic counseling	5
Mental health	#
Mental retardation	1
Total	1,014

Clinic, Outpatient, and Other Ambulatory Services	Thousands of Persons
Infant and child health	5
Crippled children	365
Tuberculosis	#
Venereal disease	#
Chronic disease	#
General ambulatory care	2
Other	5
Home health care	2
Renal dialysis	#
Inpatient care	51

NOTE:
Because the total represents the estimated, unduplicated count for each program, figures for individual types of service for each program category add to more than the total.
= less than 500.

The similarity between the MCHS Statistical Series and NPHPRS in the data on clinic and inpatient services suggests that the States are reporting to NPHPRS largely on Title V-funded services.

NPHPRS also developed a Crippled Children's Services and Expenditures Supplement in 1977. The definitions regarding the services to be included parallel those for the Maternal and Child Health Services Supplement—activities described in the State's Title V plan, including those provided for, arranged for, or purchased through sources other than Title V.

The second report based on the Supplement covers fiscal year 1978 (*6*). It includes information about the following:

(1) The number of users and discharges for inpatient hospital care services
(2) The number of users and encounters for ambulatory care services
(3) The number of children receiving basic or specialty assessments and the followup status of those requiring treatment

Fifty-four States reported providing inpatient care to 81,321 children, and 53 States reported providing ambulatory services to 604,467 children. Because of incomplete reporting in other categories, the data will not be presented here.

Other Services

Like MCH funds, CCS funds are used for activities other than the provision of care. Crippled Children's Service agencies also have important administrative functions. Their activities in the area of quality

control, such as "prior approval" for procedures and the maintenance of lists of providers and hospitals approved to give services are particularly significant. Many State CCS agencies devote major attention to the critical case management function and promote an interdisciplinary approach to the problems of handicapped children.

PROBLEMS WITH TITLE V

Despite the generally favorable trends in the maternal and child health field (for example, the decline in infant mortality and the increase in both the number of physician visits per year for children and the number of children whose parents say they have a usual source of care), clear evidence exists that greater improvement is possible within the realm of current technology. Infant mortality is still very high among poor and minority groups who also bear a disproportionate number of low-birth-weight and high-risk infants. Many women still receive prenatal care late in pregnancy or not at all; and adolescent pregnancy—especially among the very young—remains a medical, economic, and social problem. The number of children reported as handicapped or disabled remains steady or is rising; and many children are unimmunized. Primary care services are unavailable physically or financially in many areas. Although Title V could not be expected to solve all these problems, some experts believe that greater progress should have been made given the sums of money available and the flexibility of the mandate.

Some of the problems that prevent Title V from reaching its full potential have been suggested in previous sections: proliferation of programs, a vague mandate, complex funding formulas, and imprecise reporting requirements. These and other issues can be divided into those with a predominantly Federal locus, those largely State or local, and those that pervade the entire field. It should be understood, however, that these categories are not rigid—problems at the Federal level cause stress at the local level, whereas some State problems could be mitigated by strong Federal action.

At the Federal Level

When Title V was first enacted in 1935, it had many unique features: (1) it utilized a new concept in Federal-State relationships—the formula grant; (2) it represented a new attempt at asserting a public interest in providing care to pregnant women and children; and (3) it was almost the only source of public funds for the health care of these populations. Title V's vague terminology and lack of specific guidelines were appropriate given the first two factors. The Federal Government and the States needed to develop a mutually satisfactory method of managing the grant-in-aid. The Sheppard-Towner Act, which also had attempted to develop State health department programs in maternal and child health, had met with great resistance and had been allowed to die in 1929. Considerable flexibility was essential if each State was to find ways to proceed despite obstacles that included State and local medical societies and Federal and

State legislators. Circumstances have changed, however, and new problems have arisen.

Weakness of Federal Direction

Currently, Title V's most significant problem is the absence of clear Federal direction. Its mission in the maternal and child health field as stated in the statute is very broad, and little guidance is provided by law or regulation concerning the methods by which this mission is to be accomplished. (The situation with regard to handicapped children's services is somewhat better than in the other areas of maternal and child health, but many of the problems to be discussed apply to crippled children's services as well.) Equally important is the fact that neither the law nor the regulations provide any method for monitoring State performances. Such a system would require standards setting forth what each State is expected to accomplish, an information system capable of determining whether progress is being made, and a system of incentives and penalties; none of these is currently in effect.

Proliferation of Programs

One of the consequences of the absence of clear Federal direction has been the proliferation of programs separate from the Title V agencies, which affect mothers and children. Although in its early days the opposition of organized medicine limited what Title V agencies could do, the absence of competing programs gave them a wide choice of fields to explore. Because there were few, if any, other places to turn for funds, the entry of a Title V agency into a geographical area or a type of medical care was welcomed. Nor did Title V agencies have to worry about duplication of services, interagency agreements, or third-party reimbursements. Although the Title V agencies had this freedom, they tended not to use it and were reluctant to develop new services.

Today, partially as a result of that reluctance, the situation is very different. Title V is responsible for only a small portion of public activities in the area of child health or women's reproductive health. Congress has authorized many other agencies in the Public Health Service, in other sections of the Department of Health and Human Services, and in other Federal departments to provide health-related services to women and children. In the absence of a single agency with authority to coordinate programs, some individuals or groups are neglected or duplication occurs. Moreover, neither the States nor Congress appear to have a clear concept of a unique role for Title V agencies at the Federal or State level at a time when many other agencies have responsibility for maternal and child health.

Leadership in this area could have been assumed by Congress by amending Title V to make its functions clearer. Alternatively, the Administration, through its power to make regulations and to administer the program, could have reduced fragmentation. (Some of the more recent regulations issued in conjunction with child health programs require Title V agencies to play a coordinating role, the Supplementary Security

Income program for example; but these regulations are difficult to enforce.) Nor have the State Title V agencies shown the assertive leadership that would have been essential to discourage fragmentation. Experts have suggested that the EPSDT program could have been placed in the hands of the MCH divisions of State health agencies if they had demanded it, rather than allowing it to be assigned to the Medicaid agency. Similarly, the tendency of State Title V agencies to focus almost exclusively on Title V-funded programs has kept them from playing a significant role in the development of new programs affecting women and children, such as community health centers and ambulatory care centers.[13]

Inadequacy of Reporting System

The reporting systems described earlier in this paper obviously are inadequate for a program as large and expensive as Title V. They reflect the absence of a clear concept of Title V's mission; and because the Federal Government is not certain what Title V should be accomplishing, it cannot make definitive decisions about what should be measured. Rather than take a fresh look at the problems of accountability, the Government has developed one system after another for collecting data on Title V—all without links to other Federal maternal and child health data systems, such as those for WIC, EPSDT, or family planning. Because little use is made of what information is collected (besides Federal budget justification), it is understandable that neither the Federal nor the State Title V agencies give high priority to restructuring the reporting systems.

At the State Level

As a result of the Federal Government's ambiguity concerning the functions of the State Title V agencies, these agencies have been able to do what they wanted within broad limits, provided they could obtain support from their legislatures and such centers of power as medical societies and city and county governments. Although some States have developed new and interesting approaches to maternal and child health problems, many State Title V agencies have not been particularly innovative in their use of funds. Their well-child conferences, prenatal clinics, school examinations, and similar programs have remained relatively unchanged through the 1940's, 1950's, and early 1960's. The President's Panel on Mental Retardation and the health impetus of the War on Poverty eventually combined to bring about the prevention-treatment emphasis and the targeted approach of the Maternity and Infant Care and Children and Youth projects. Similarly, Federal pressure has been required to move Title V agencies into family planning, mental retardation, and intensive infant care.

[13] Because neighborhood health centers, and later community health centers, were funded by Federal project grants that deliberately bypassed State and local health departments, Title V agencies could assume little responsibility for their early development. Some State Title V agencies have overcome this barrier—many have not.

Lack of Planning Orientation

A few States have used the flexibility inherent in Title V to assess needs and to develop statewide plans for providing services to women and children, but most have not considered such planning and development activities to be their responsibility. Rather, State Title V agencies have believed that their responsibilities were largely limited to the direction of services and programs funded by Title V or by State MCH-CCS funds. In addition, many MCH and CCS directors, even if they have received public health training, are clinically oriented. As one maternal and child health professor has noted, they believe that the way to solve problems is to open clinics. With this avenue closed to them because of inadequate funds, the directors would need strong guidance from regional and central offices, and perhaps financial incentives, to adopt a planning and resource development role.

Uneven Coverage

One important result of the lack of comprehensive planning and the ad hoc accretion of programs within States has been uneven distribution of many maternal and child health and crippled children's services. Within each State are some communities where superb, comprehensive, and continuous care is offered to groups of high-risk mothers and children. These frequently are areas where MIC and C&Y projects or handicapped children's clinics are located, or where local health departments have developed a full range of programs. Other communities (sometimes with equally high indicators of poverty, infant mortality, and medical underservice) are without Title V-funded or other programs, or have programs of limited range that depend on referrals and individual initiative to accomplish comprehensive care. A well-child conference that refers sick infants to hospital ambulatory care centers or private physicians is one example. Despite the rural emphasis of the funding formula, rural areas often are among the underserved (7).

The excuse frequently given by States for their failure to extend comprehensive programs—such as MIC and C&Y—to all needy areas is the lack of sufficient funds. This undoubtedly has been a major factor. The increase in maternal and child health services funding since the 1975 combining of formula and project funds has been insufficient to cover medical inflation, much less to develop new projects of the magnitude of most current MIC or C&Y projects. Inflation and increased service demands also have affected the CCS programs, and some States report that they distribute all their funds before the end of the fiscal year.

Lack of Integration with Other Programs

The belief that additional funding is the only way to bring about a more equitable distribution of services is an example of the limited vision and clinical orientation of many State Title V programs. With some exceptions, and for reasons discussed above, the State MCH and CCS directors have watched but not participated in the development of both community

and migrant health centers and urban and rural health initiatives. Few have viewed them as opportunities to extend the areas served by comprehensive maternal and child health programs and some have questioned the quality of care they provide to women and children.

Because many Title V agencies believe that their responsibility is limited to programs operated by the State health department and its grantees and by local health departments, they exclude from their concern not only the Federal health centers, but also other programs—such as hospital ambulatory care centers, health maintenance organizations, and, in some cases, the EPSDT program—that frequently receive large amounts of public funds. They also exclude responsibility for private care except for such areas as standards development and quality control under payment programs for maternity care or crippled children. The reluctance of State Title V agencies to integrate programs funded under other auspices into a statewide network of services has contributed to the uneven distribution of services.

By Federal mandate, State Title V agencies have had to enter into agreements with State Medicaid, Title XX, WIC, and other agencies. In most cases, such agreements have improved service delivery but they have not solved the problem of service distribution.

Distrust of Community Participation

Collaboration with federally funded primary care projects is made more difficult because of a frequently expressed dislike of community participation in the planning and operating of health services. Many maternal and child health professionals had unfortunate experiences with "community control" during the early years of the War on Poverty. Although these professionals and their agencies use volunteers and work with consumer groups, they remain doubtful about the ability of consumers to assume the role of full partners in decisions about maternal and child health services.

Medical Society Opposition

Another reason why State Title V agencies have not assumed greater leadership in ensuring a more uniform distribution of MCH and CCS programs is the actual or anticipated resistance of State and local medical societies to further expansion of public responsibility for medical care. Almost all MCH and CCS directors are physicians and thus sensitive to the attitudes of their colleagues. The medical societies also have it within their power to seriously jeopardize maternal and child health and crippled children's services programs by urging their members not to participate or by withholding staff privileges from physicians in public programs. In the absence of a clear mandate, State Title V officials are wary of challenging organized medicine.

Low Visibility

The low visibility of the Title V agency in the Federal bureaucracy is mirrored in the individual States. The development of "umbrella agen-

cies" has resulted in public health departments that must go through layers of bureaucracy before reaching the Governor or the legislature. Within the public health departments, maternal and child health agencies that once reported directly to the State health officer are now in divisions such as preventive medicine or family medicine. In these divisions, the ability of MCH or CCS officials to bring the problems of women and children to the attention of the administration and the legislature is limited. In addition, salaries in the State merit systems sometimes reflect this organizational arrangement, making it difficult to recruit qualified staff.

Prejudice

Finally, in some States, racial and ethnic prejudices have led to inequitable service delivery. Anecdotal reports still suggest discrimination against minority practitioners and poor quality services to minority groups (examinations of clothed children, segregated waiting rooms, and more), if not in public programs, at least in programs that receive public support. State Title V agencies have not always led the struggle against such inequities; rather they have reflected the biases of elected officials, bureaucrats, and the general population. Both black and Spanish-speaking minority leaders have expressed a lack of confidence in the ability or desire of some States to provide services to their constituencies. Some minority spokespeople would like to see a return to Federal project grants because they believe the Federal Government is more likely than the States to distribute funds on the basis of need and to take affirmative action in regard to minority practitioners.

Throughout the Maternal and Child Health Field

A traditional, conservative approach pervades much of the maternal and child health profession. Although individuals in the field have much to be proud of, and although many excellent program features exist that should be preserved, such conservatism may be contributing to a loss of leadership to planning agencies, of patients to primary health centers, and of dollars to other programs. Examples of traditional approaches include separation of preventive and curative care, a clinical rather than a planning perspective, a reluctance to work closely with community health centers, and a distrust of community participation. Closely related to these phenomena are two other problems: professional elitism and a resistance to family-centered programs.

Professional Elitism

Members of the various maternal and child health professions are reluctant to acknowledge that individuals without conventional certification are capable of providing the quality of care that they believe is due all pregnant women and children. This belief is understandable and laudable. Over 40 years, Title V agencies have built a reputation for high-quality

care. Clearly they should not lend their support to groups that cannot provide such care. Equally evident is the fact that, because of their vulnerability, children and pregnant women should not receive substandard care. The problem resides in the equating of credentials with quality and the all-or-nothing philosophy. Although board-certified pediatricians, master's-level social workers, public health nurses, and individuals with similar credentials may be essential caregivers for multiply handicapped children or high-risk pregnant women, a primary care center with adequate referral services may provide superb services through pediatric nurse practitioners and community outreach workers. In many areas, a limited service is the only alternative to no service. Rather than ignore the limited service because it does not meet standards originally established for another level of care, Title V agencies should assume responsibility for ensuring that the maternal and child health staffs in all publicly funded programs have the proficiency necessary to serve their patients, and have available and know how to obtain services beyond their ability.

Resistance to Family-Centered Programs

Another example of how a basically sound theory may cause difficulty in practice is the insistence of many maternal and child health care leaders on providing services to women and children in programs and facilities that serve these populations exclusively. This issue is very controversial without clear resolution. Many maternal and child health experts firmly believe that the health interests of women and children can best be served by programs exclusively directed to their needs. Others in the medical care field believe equally strongly that care, and particularly primary care, should be family centered. Those advocating an exclusive approach cite evidence from programs in the United States and Great Britain indicating that the special needs of women and children receive less attention in generalized programs. Because the health problems of the older populations (heart disease, cancer, diabetes, and the diseases of senility) frequently are more acute and life threatening, they receive the most time and attention. Because they are usually less severe, the needs of women and children become secondary, and, if resources are scarce, often are neglected. Such a priority system clearly is illogical in the long run. With many productive years ahead of them, children's well-being can be imperiled if they do not receive adequate preventive care or treatment for conditions that are still minor.

Today most primary care experts, however, favor a family-centered approach because it provides both a better perspective on the reasons for health problems and greater convenience for the consumer. Focusing on the pregnant woman or on the child to the exclusion of other family members may obscure factors important in the understanding of a disease process or in the development of a therapeutic intervention. Parents, and particularly mothers, may find it more convenient to obtain care in one place for themselves, their children, and other family members rather than to travel to one place for prenatal care, another for child care, and a third to find help for an elderly grandparent.

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Acknowledging that the family-centered approach may lead to problems, advocates of this form of primary care believe that problems can be avoided by careful planning and a variety of strategies such as dollar allocations and development of standards. Moreover, they feel that the advantages outweigh the risks. Many Title V officials, however, still resist the use of community health centers and other family-based facilities for maternal and child health services or, vice versa, the addition of other services to facilities and programs that are currently serving women and children exclusively.

Extent of Problems

Any program as extensive as Title V will manifest important differences among its administering agencies. No State Title V agency has all or even most of the aforementioned problems, and none of the problems discussed can be found in all or even most of the agencies. Some Title V agencies have innovative and progressive leaders who are shaping programs to meet current needs. Other MCH and CCS directors are capable of developing outstanding programs, but are hampered by State policies and regulations. But some State Title V agencies still reflect traditional concepts and practices that hinder their ability to solve today's problems. A revitalized Title V program would encourage the States that have already tried new approaches, provide assistance to those ready to change, and force the more conservative to face current problems.

At the Federal level during the past few years, the Office of Maternal and Child Health has tried several methods of encouraging State Title V agencies to assume expanded responsibilities. The Improved Pregnancy Outcome and Improved Child Health projects promoted the use of planning and resource development strategies. A discussion paper entitled, "A State-Based System of Child Health Care," outlined problems in the ongoing operations and suggested possible changes. The current position paper, "An Organized System of Child Health Care in Every State—Need-Potential-Mission," offers an approach to "an organized, integrated and more effective system of health care for mothers and children" through advocacy, needs assessment, planning, resource development, quality assurance, and other mechanisms. These activities at the Federal and the State levels deserve the support of both Congress and the Administration.

RECOMMENDATIONS FOR IMPROVING TITLE V

Before describing a series of recommendations for improving Title V, the assumption about maternal and child health services that underlies them should be made explicit: preventive, curative, and restorative health care can have a significant impact on the health of children and on women with fertility-related needs and, therefore, programs that attempt to

provide such care in a more equitable manner should be supported. Undoubtedly, maternal and child health is influenced more by socioeconomic factors—poverty, racism, and such associated problems as poor housing, broken families, inadequate education, and harmful environments—than by medical care. Nevertheless, while attempts are being made to reduce the impact of these social problems, efforts to improve the delivery of health services should be continued and expanded.

Continue Federal-State Partnership

Theoretically it would be possible to eliminate Title V and to develop a totally new maternal and child health policy and a new organization to implement it. Such an approach has much to recommend it. For example, a new organization would not be burdened with antiquated structures and nonfunctional traditions. This approach, however, is probably politically impossible because of the popularity of Title V with Congress and the States, which perceive it as a form of health revenue sharing.

Alternatively the present Title V program could be curtailed gradually and replaced with a project grant system under which the Federal Government would assume leadership in developing local programs. Strong arguments have been made for this method of increasing Federal direction and control, a method which would also eliminate many of the State-based problems in the current State-Federal partnership. This approach, however, while less politically offensive to Congress, probably would not be viewed favorably by the States. Moreover, it ignores both the problems inherent in federally administered programs and the positive effects of State participation. This country may be too large and maternal and child health services too diverse to be managed centrally or even through regional offices. Although the Community Health Center's Project is administered successfully from a central office, its program is more limited, aimed specifically at providing primary care in underserved areas. The broader Title V programs encompass primary, secondary, and tertiary services and educational and other preventive programs, as well as research and training.

Moreover, responsibility for public health is an important function of State government. Each State has a health department and a health code. Title V agencies can use these important resources to build programs and to enforce standards. A Federal project grant would neither utilize State planning capacity, nor build the system of maternal and child health care that clearly is essential. More likely, it would continue or worsen the fragmented array of services that currently characterizes many States.

Specify Title V's Mandate

The first essential step in the improvement of Title V must be taken by the Federal Government. The responsibility of Federal and State Title V agencies to ensure that children and all women with fertility-related needs receive high-quality care should be made clear. Implicit in such a mandate

is the belief that Title V agencies have a responsibility for the health needs of all mothers and children, not just those served by Title V-funded agencies. For some States, this will be a significant change.

The assurance rule would involve working with primary care centers, hospital ambulatory care programs, schools, local health departments, and other agencies to develop networks of facilities that could both provide primary care to mothers and children and monitor the quality of care in such facilities. If no primary care facility was available in an area, the State Title V agency, in conjunction with the local Health Systems Agency, could assist community groups in applying for the appropriate State or Federal funds. State Title V agencies also should work with Medicaid, Title XX, and other funding sources to raise payment levels for maternal and child health services so that more providers would participate, to increase the numbers of mothers and children eligible for Medicaid and other payment programs, and to monitor the level of care provided through such programs. A similar role should be played by State Title V agencies in regard to secondary and tertiary care: developing networks, monitoring quality, educating providers, and demonstrating new services.

The State Title V mandate should also include planning because it is unlikely that the problems of mothers and children will receive adequate attention from the local Health Systems Agencies or their State of Federal counterparts. Collaborative activities with these agencies, however, should strengthen the Title V agencies' ability to improve maternal and child health by making them part of a larger advocacy group that has the resources and skills necessary to plan adequately and the statutory responsibility for the approval of certain types of Federal health expenditures.[14]

The new mandate would also mean increased activity for the Federal Title V agency. Its advocacy role would be crucial both in convincing Congress of the continuing needs of women and children and in working with other agencies to ensure that these populations receive adequate attention. If the State Title V agencies were to assume the functions just described, the Federal Title V agency would need to provide a variety of supportive services. Federal and regional offices would require personnel with planning and other types of expertise to assist the States in assuming their new roles. State maternal and child health plans would have to be monitored carefully, funding requests for demonstration projects would need to be evaluated, and consultation services provided in many areas.

Revitalization of State Plans

If a new mandate for Title V was accepted by Congress and the Administration, a wide range of actions would be required to implement

[14]The concepts described in this paragraph and in the section that follows on "Revitalization of State Plans" are similar to those expressed in the *Planning Manual for the Use of State MCH and CC Directors in the Development of a State Plan*, developed in 1979 by a Committee of the Association of State and Territorial Directors of Maternal and Child Health and Crippled Children's Programs, chaired by John C. MacQueen.

it. Perhaps the most basic change needed would be in the mechanism by which Title V funds are awarded to the States. Although the Title V statute makes approval of "a State plan for maternal and child health services and services for crippled children" a condition for receiving funding, little attempt has been made to use the State plan as an instrument to bring about change. In fact, present State plans have little significance—the Office of Maternal and Child Health has not required them to be submitted to Washington or to the regional offices since 1968. Although the plans must be available for inspection by regional officials in State Title V agencies, there is little evidence that anyone reads them except to check that they meet certain statutory requirements. Consequently, most States have ceased efforts to produce meaningful documents, and only superficially update their plans every 1 or 2 years.

Because the statute requires approval of the plans as a condition of funding, these plans could be used to implement the new Title V mandate. No legislative change would be needed because Section 505 of Title V allows the Secretary to require reports and to determine their form and content. If the State plans were viewed as a mechanism for implementing a new Title V mandate, however, it would be necessary to specify what the plans were to include and to assign staff to read the final documents and to determine whether or not they met standards for funding in whole or in part.

One approach would be to require each State plan to include (1) an analysis of resources currently available and plans for improvement where necessary, (2) a set of performance standards and proposals for achieving them, and (3) a report of progress in both areas since the submission of the previous plan. The resource analysis should include information on services available to children and to women with fertility-related needs in every subdivision of the State. Among the possible subdivisions would be counties or State health areas as designated by the State Health Planning and Development Agency. For each subdivision the State should be required to show the sources of primary, secondary, and tertiary care for children by age group; and for women with fertility-related needs, including pregnancy and delivery, family planning, and infertility. These resources should include programs of local and State health departments; federally funded primary care centers; programs based in schools, Head Start, and day care centers; hospital facilities including ambulatory services; health maintenance organizations; National Health Service Corps stations; privately funded organizations, such as Planned Parenthood Clinics or Easter Seal services; private physicians; and other resources. The plan should indicate financial and other eligibility criteria for public programs, and the availability of Medicaid and other programs such as Supplementary Security Income or Title XX programs to finance care not available without cost from public programs.

Once all resources were catalogued by area, it should be possible to indicate areas in which public facilities were inadequate or in which women had insufficient incomes to purchase the available services. The States would then be required to explain how they planned to alleviate the

needs of the populations in these areas. Examples of activities directed at underserved groups might include the following:

(1) Regionalization of secondary and tertiary care centers with transportation provided so that individuals in need of such services could be brought to them.
(2) Requests for National Health Service Corps personnel to serve in areas without resources.
(3) Modification of services currently provided by public programs in order to meet more needs. For example:
    (a) Converting well-child conferences into pediatric ambulatory services providing all types of primary care; and
    (b) Expanding school health services into facilities providing all types of primary care to school-age clients.
(4) Assisting hospitals in developing ambulatory facilities for children and for women with fertility-related needs. Depending on location and resources, these could be primary care facilities providing preventive as well as treatment services, or secondary or tertiary centers, treating individuals with complex problems.
(5) Assisting communities in developing applications for primary care project grants that would include children as well as women with fertility-related needs.
(6) Negotiating with State Medicaid agencies about coverage for populations neither covered by public programs nor able to purchase private care.

The plan might indicate that all other possible resources had been exhausted and that the only way of providing needed services was through additional Federal funding. To meet such needs a special fund for demonstration projects would be set aside.

State plans in this new format would need to be carefully reviewed in the regional and Federal offices to ensure that they were comprehensive and correct. The facilities listed as available for providing care to women and children should be checked against a list of primary care project grants, National Health Service Corps placements, hospital listings, federally supported health maintenance organizations, local health department services, and other public programs. If any facility that was providing or had the potential for providing services was omitted, the State would be asked to explain. In some cases it might be that the facility, a rural health center for example, was not meeting the State Title V agency's standards for MCH or CCS programs. This information would then be transmitted to the facility's funding source for appropriate action. In other cases, the State Title V agency might not have the authority to change the service delivery pattern of a facility, for example, a county health department. Again, this information would be discussed with Federal and State officials.

During the review process, special attention would be paid to areas known to include large numbers of poor and minority populations and to rural areas. Plans would be expected to show evidence of targeting of services to these traditionally underserved groups.

A second required component of each State plan should be a set of performance standards and plans for achieving them within a 2-year period. The Federal Title V agency in cooperation with representatives of State agencies and others in the field of maternal and child health would select service areas in which performance standards could be established. The regional office could then work with each State in deciding which standards were applicable for that State. For example, a State where the infant mortality rate was significantly above the national average might be required to set a goal of reducing that rate by a specified amount within 2 years. Another State with a low infant mortality rate could be required to emphasize another area, such as percentage of children diagnosed as having a specific condition who were referred for and actually obtained treatment. The third required component of each State plan should be a progress report describing in detail the State's accomplishments since the previous report, with special emphasis on development of needed resources and achievement of performance standards.[15]

Because the State plans in this new format would require considerable time and effort, they probably should be developed for 5-year periods with updating required every 2 years. In the intervening year, only a shorter progress report would be submitted. State Title V agencies should be required to develop their plans jointly with State health planning agencies, and consumer input should also be mandated.

Revision of Reporting Requirements

Unless current reporting requirements are revised, Federal oversight of State performance under the new mandate would be difficult if not impossible. The Federal Title V agency should decide what specific information is essential, and regulations or guidelines should be developed reflecting these decisions. Data systems should be developed to permit Federal, State, and local authorities to determine not only how Title V funds are being spent and the numbers and characteristics of the population served, but also the services that were or were not received. These systems should also make it possible to determine the cost of services at various sites.

Regulations regarding financial accountability should not only encompass the information to be provided, but also should indicate uses of funds that would not be allowed. For example, some States now take a percentage for overhead from the State Title V formula funds. Should this be permitted? Many States distribute a considerable portion of their Title V formula funds to local health departments to support their maternal and child health programs. What degree of control should the State have over the use of those funds? Should support of research, State laboratories, vital statistics sections, and other projects be permitted? Decisions on these

[15]OMCH has begun to encourage State Title V agencies to undertake this type of planning. Recently issued "Guidelines" for both an Objectives and Activities Report and an Annual Program Performance Report discuss measurable objectives, activities to accomplish them, and comparison of actual achievements with objectives. These guidelines stress services for *all* mothers and children, and cooperative arrangements with other health-related programs.

matters cannot be made until a new set of report forms makes it clear how funds currently are used.

Additionally, a series of outcome and performance standards to measure program impact should be developed by Federal officials in collaboration with representatives of State Title V agencies. Outcome measures should be based primarily on data already available to the State through birth and death certificates, hospital admission and discharge records, communicable disease reporting, and similar sources. Periodically, States might want to use their funds or might apply to the Federal Government for funds to do special studies that would require the collection of new information through sampling of records or household surveys. The data systems upon which accountability is determined also should provide the States with the information necessary to demonstrate needs and to prove progress.

Changes in Administrative Structure

The placement of the Federal Title V agency in the Federal bureaucracy should be reviewed. Although the Office of Maternal and Child Health's present position within the Bureau of Community Health Services is logical in terms of its service delivery role, an expanded role in advocacy, interagency collaboration, and planning would suggest placement higher within the Public Health Service. An expanded Federal staff with different skills would be essential for implementing the proposed recommendations. Additional staff members would be needed to work with the regional offices and the States. The new emphasis on planning and resource development would require the recruitment of individuals with skills in planning, development of data systems, administration, and related areas, in addition to those with traditional clinical skills.

These recommendations would apply to the regional offices as well, where additional maternal and child health staff would need to be chosen on the basis of abilities in the new areas of emphasis. These staff members should be in positions that enable them to bring the power of the Federal Government to bear on the solution of State problems.

States may also wish to change staffing patterns. For example, a State may want to appoint an individual with training and experience in planning, administration, or a similar field to serve as director of its MCH or CCS program. This appointment would require a change in the Federal regulations, which currently require that a physician be the director.

New Emphasis in Training

In 1980, most of the Title V training funds were used for training clinicians. If the new mandate were adopted, however, a large number of professionals familiar with maternal and child health—but with skills in planning, data analysis, administration, and related areas—would be necessary. Federal priorities would need to be shifted to make funds available for the training of such individuals. The Federal planning

agencies should be consulted to determine the feasibility of collaborative training programs.

Increase in Title V funds

A significant increase in Title V funds would be necessary to implement the programs described. To assist the State Title V agencies in their transition to a new mandate and a new State plan format, additional funds should be made available for collecting the information necessary to develop the resource analysis and the performance standards. Five million dollars per year for 2 years probably would be sufficient and could be distributed among the States on the basis of population.

Another mechanism for assisting the States and for providing an incentive for planning would be a resource development fund set aside in each State's Title V maternal and child health and crippled children's services allocation. States would apply for permission to use all or part of this resource development fund for community projects where need had been demonstrated in the State plan. The Federal Title V agency, in consultation with the regional office, would determine if the project was essential and would release the funds accordingly. Because the resource development funds would be intended to serve as a source of financing for demonstration projects, the States would be required to develop plans for the gradual phasing out of Title V funds for each demonstration. If a State was unable to prove its need for any or all of the resource development funds, they would revert to the Federal Government for direct funding of projects in underserved areas, preferably in the same State.

Changes in the Formula

Additional changes in the formula for distributing Title V funds should be considered. The rural emphasis of the formula is particularly in need of reevalution. Evidence suggests that it has not been successful in targeting services to rural areas. Also, many urban areas currently have the worst maternal and child health problems. A formula based on either the percentage of children and of women of childbearing age in medically underserved areas or on the proportion of children in poverty—rather than on births and rural setting—might provide a more equitable distribution of funds. The continuation of the supplemental 516 funds and the impact of that section on the States receiving those funds also should be studied.

Penalties for Noncompliance or Poor Performance

To move the States into their new roles, disincentives also might be necessary. Currently, if a State is not in compliance with the law, the Social Security Act only provides for a total loss of Title V funds. This

penalty has never been carried out and should be removed from the legislation as impractical because its enforcement would penalize the recipients of services more than the Title V agencies.

Nevertheless, the stipulation that Title V funding is dependent upon the receipt of an acceptable State plan should carry with it a penalty. The Federal Title V agency should have the right to withhold all or part of the State Title V agency's allocation if it cannot produce an acceptable plan, if only part of the plan is acceptable, or if it cannot show evidence of satisfactory progress in resource distribution or performance standards. The withheld funds would then be made available either to another agency in the State (such as a medical school or an agency that could develop an acceptable plan) or, as a last resort, to a team of Federal employees who would administer the program until such time as the Title V agency was able again to assume responsibility for its own program. In effect, this would be a form of receivership and by its mere presence in law or regulation would provide the Federal Government with a threat that it could use to help motivate State governments. An additional, but less radical penalty, would be the loss of resource development funds in cases where the need for such funds was inadequately documented in the State plan. Appropriate processes to prevent unfair decisions would be essential.

Continuation of Crippled Children's Services Program

Any attempt to change Title V should give considerable attention to the need for continuing the Crippled Children's Services Program as a separate entity. In the era of Medicaid, the Supplemental Security Income Program, the Education for All Handicapped Children Act, and other Federal and State programs for children with special needs, the CCS program must have a unique function to justify its continuation.

A recommendation regarding the CCS program, however, would seem premature. More information is needed about current program operation and the potential for other funding sources. Moreover, States cannot be expected to completely reorganize all existing programs; changes should be undertaken gradually. A radical shift in the CCS program before other mechanisms are in place would jeopardize the well-being of a very vulnerable population.

CONCLUSIONS

Title V is one of the oldest Federal health care programs. Moreover, there can be little doubt that its services have improved the health of mothers and children. But times change, new problems appear, and new responses are necessary. The proliferation of other programs with mandates to improve maternal and/or child health suggest that the Title V agencies are experiencing difficulties in accomplishing their legislative mission—or that they have done an inadequate job of explaining that mission.

The recommendations in this report are based on the assumption that a Federal agency and State agencies where the sole function is to protect the health of children and women with fertility-related needs are still necessary—even in an era of family-based care. Theoretically at least, a Federal-State partnership appears to be the most suitable mechanism for ensuring that these populations receive the health care they need. And, because Title V agencies have a long history in this area, their continuation is urged.

Mothers and children are the ones who need protection, however, not the agencies. In recent years the performance of some State Title V agencies has been poor. The continuing high rates of infant mortality in certain areas, the fragmented approach to children with severe handicaps, and the neglect of adolescent pregnancy until recently, to cite just a few examples, show lack of leadership and reluctance to stray from conventional programs. The outstanding performance of other States, however, suggests that the problem is not inherent in the Title V mechanism itself.

This report urges a new mandate for Title V and new procedures for implementing it. Other organizations both within and outside the Federal Government also are examining Title V and making recommendations. Whatever approach is taken should be closely monitored. In principle, the Title V agencies can be revitalized and the process can have a measurable impact on maternal and child health. Nevertheless, Congress and the States should be prepared to place the health of women and children above the survival of agencies, and to develop a new system if this revitalization does not succeed.

APPENDIX A

The Social Security Act
Public Law 271—74th Congress
Enacted August 14, 1935

TITLE V—GRANTS TO STATES FOR MATERNAL AND CHILD WELFARE

Part 1—Maternal and Child Health Services

Appropriation

Section 501. For the purpose of enabling each State to extend and improve, as far as practicable under the conditions in such State, services for promoting the health of mothers and children, especially in rural areas and in areas suffering from severe economic distress, there is hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1936, the sum of $3,800,000. the sums made

available under this section shall be used for making payments to States which have submitted, and had approved by the Chief of the Children's Bureau, State plans for such services.

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Part 2—Services for Crippled Children

Appropriation

Section 511. For the purpose of enabling each State to extend and improve (especially in rural areas and in areas suffering from severe economic distress), as far as practicable under the conditions in such State, services for locating crippled children, and for providing medical, surgical, corrective, and other services and care, and facilities for diagnosis, hospitalization, and aftercare, for children who are crippled or who are suffering from conditions which lead to crippling, there is hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1936, the sum of $2,850,000. The sums made available under this section shall be used for making payments to States which have submitted, and had approved by the Chief of the Children's Bureau, State plans for such services.

REFERENCES

(1) General Accounting Office. *Better Management and More Resources Needed to Strengthen Federal Efforts to Improve Pregnancy Outcome.* (HRD-80-24), January 21, 1980.

(2) Bureau of Community Health Services. *Maternal and Child Health Services of State and Local Health Departments. Fiscal Years 1974, 1975, 1976.* Rockville, Md.: U.S. DHEW, 1979.

(3) The Association of State and Teritorial Health Officials. *Services, Expenditures and Programs of State and Territorial Health Agencies. Fiscal Year 1978.* National Public Health Program Reporting System, January 1980.

(4) Association of State and Territorial Health Officials. *Selected Title V Maternal and Child Health Services, Fiscal Year 1978: A Report on the Second Year of a Maternal and Child Health Statistical Data Set.* National Public Health Program Reporting System, February 1980.

(5) Bureau of Community Health Services. *Children Who Received Physicians' Services under the Crippled Children's Program, Fiscal Year 1973.* Rockville, Md., 1977.

(6) National Public Health Program Reporting System. *Selected Title V Crippled Children's Services, Fiscal year 1978.* Association of State and Territorial Health Officials, February 1980.

(7) Davis, K. and C. Schoen. "Medical Care for Mothers and Children: The Maternal and Child Health Program." In *Health and the War on Poverty: A Ten-Year Appraisal,* pp. 142–144. Washington, D.C.: The Brookings Institution, 1978.

THE EFFECTIVE INTEGRATION OF MATERNAL AND CHILD HEALTH CONCERNS INTO THE GENERIC HEALTH SYSTEMS PLANNING PROCESS

by
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PURPOSE AND SCOPE

No mechanism or set of mechanisms currently exist for the effective integration of maternal and child health care needs within the health planning structure of the United States. In part, this is a result of the lack of an effective structure for planning *within* maternal and child health programs. Effective integration of maternal and child health care into the health planning process can be accomplished only if a major reform occurs in program planning for maternal and child health.

Child advocates have frequently stressed the importance that children have health problems quite separate from those of adults and that the maintenance of good health in childhood is essential to lifelong health and intelligent health behavior. Therefore, planning for children should have high priority in the development of overall plans. This basic theme is reflected in the prologue to the *Michigan Child Health Plan*, developed by the Michigan Chapter of the American Academy of Pediatrics.

> A truly effective plan must not fragment care of the child . . . factors outside the health care system profoundly influence the health status of children and profoundly interfere with delivery of health care under the present system. Income, nutrition, housing, environmental factors, general and health education, racial and social discrimination and availability of transportation are all factors not susceptible to manipulation by the present health care delivery system. Failure to recognize these factors, especially as they relate to child health, and to plan objectives in these areas, will doom any health care planning to incomplete and inadequate improvement in health status of the target population . . . Objectives in these areas are not the

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primary charge of the (health services agencies) at this time, but we encourage their inclusion since they exert an effect on health status as profound as any other factors. They currently represent the major obstacles to improvement of health status (*1*).

This statement presents, in effect, a view of child health concerns that recognizes the significance—indeed the necessity—of a systems reference. It is this systems perspective that informs the best of overall health planning activity.

BASIC ASSUMPTIONS

Planning has been described as anticipatory decisionmaking: the designing of a desired future and the effective ways of bringing about that future. Planning is commonly based on five basic premises:

(1) Change is desirable
(2) Ordered change is possible and at least partially influenced by human beings
(3) Future events can be influenced for the better
(4) Conscious commitment to action, or the intent to intervene, is preferable to passive inaction
(5) Choices must be made and limited resources allocated

Assumptions based on these premises are stated in the *California State Health Plan, 1980–1985* and specify that the role of health planning is to articulate (1) ways to protect and improve the health status of all people living and working in the State, and (2) ways to increase the efficiency and effectiveness of health resources in the State. Although health status and the health systems are usually thought to be related, the connections are in fact complex and for many health problems, not yet demonstrated. Thus, effective health planning must be based on four assumptions. These assumptions form the foundation on which the contemporary health planning movement is built (*2*).

First, health status, or the level of health of an individual or a population, is the product of four related but distinct factors:

- Human biology
- Environment
- Behavior
- Health care services

This model implies that an enormous range of social factors has an impact on health status. As this understanding grows, the notion of a "health service" expands. Whereas "health care" was once synonymous with "medical care," it now encompasses many services and activities unrelated to traditional providers such as physicians or hospitals. The "health resources" for health planning expand correspondingly as the roles of biology, environment, and behavior become clearer.

For purposes of health planning, a second assumption is the existence of a "health system," including the resources needed for health services, the variety of services offered, and the results or "outcomes" of having services available. However, this system encompasses a wide range of human services including job availability, income maintenance, housing,

education, utilities, recreation, and social services; all of these services are part of the "environment" that influences health status and competes for resources used by the health system.

A third assumption, as described in the *California State Health Plan*, is that the ultimate task of health planning is to develop a set of policies and actions to influence the character of health care over time. These policies provide the direction, inspiration, and justification for the necessary decisions made by consumers, providers, payers, and all levels of government to resolve health problems and to realize change.

Finally, health systems planning assumes that health policy is rooted in deeply held cultural values concerning (1) the nature of life, (2) the meaning of death, (3) the reality of individual choice, (4) the proper role of government and, (5) the relationships among rights, responsibilities, and power. Such values, which vary widely among individuals and groups, complicate discussions of health policy by introducing a measure of irrationality and considerable controversy. The controversy may be modified by new research results, new theories, and new technology, but, again, it may not be. The process of planning is thus, perhaps most importantly, a mechanism for revealing and resolving widely divergent opinions.

These assumptions imply that health systems planning is concerned with a level of comprehensiveness best articulated by Henrik Blum in his 1974 book, *Planning for Health (3)*. Blum described comprehensive planning for health as being concerned with:

- All manifestations and consequences of departures from health and all inputs to health
- All parties involved, including joint action among the major levels of government—Federal, State, regional, and local; joint ventures among the public, semipublic and private medical interests; joint ventures of the health professional and with the health layman and consumer; joint ventures between the various subsections of the health world; and the marriage of technology and politics
- All aspects of health care
- All aspects of the planning process including more efficient planning techniques, making conscious choices among the modes of planning and among the roles and functions open to a planning body once it understands what alternatives are available and what these options offer to the community
- Concern with planning at all levels, including appropriate activities at all levels of planning and relationships between levels
- Concern for guidance of a complex social system

A growing number of children reportedly reflect illnesses or health problems fundamentally associated with social ills: namely poverty, degenerating environment, nutritional deficits, accidents, and psychocultural factors (*4*). One effect of the distribution of child health problems is to create groups that focus concentrated energy and political attention on the treatment of chronic problems. This focus tends to dissipate concern and attention from the systemic causes of child health problems.

Thus, an interesting parallel exists between child health and health systems planning: both require a systems perspective for effective

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resolution of problems, yet both are hampered in the quest for that perspective by immediate pressures for resolution of specific problems. With respect to health systems planning, this pressure is in the form of Federal Government demands in that health planning agencies demonstrate success in cost containment. In child health, the focus is often on the treatment of a single manifestation of the problem of child health rather than on causative factors.

The value and aspirations that underlie contemporary health systems planning are assumed to be fully compatible with those underlying child health advocacy. In fact, concern for child health is much more in keeping with the original purpose of health systems planning than the more narrow issue of cost containment in the health care industry, which has consumed so much of the health planning movement's energy in recent times. This assumption naturally leads to a second, namely that attitude and shared understanding, more than specific technical approaches, are the critical precursors to the integration of child health into health systems planning.

The systems perspective facilitates two additional assumptions. First, the integration of maternal and child health must occur at all levels of the system to ensure effectiveness. Attention must be focused at the:

- Federal level, where much of the organizational fragmentation originates in maternal and child health
- State level, where the major decisions are made regarding maternal and child health resource allocation, and
- Local level, where children and their parents manifest health care needs and receive services

Second, to be effective, the integration of maternal and child health concerns into the general health systems planning process must occur throughout this process—including its public education, planning, regulatory, and technical assistance aspects—rather than exclusively at any one point in the process.

BARRIERS TO AND INCENTIVES FOR INTEGRATED PLANNING

Numerous barriers—some traditional, some of more recent vintage—impede the integration of child health into general health systems planning. Some of the significant barriers to the participation of maternal and child health interests in health systems planning are described as follows:

- Disagreement with the concept of decisionmaking that underlies health planning, involving as it does a wide variety of interests that characterize health systems planning, and a strong sense on the part of maternal and child health professionals that the requirement for a consumer majority on health planning agency boards results from a "distrust" based on experience or of those responsible for the health system.
- Maternal and child health professionals and advocates often view health planning boards as dominated by persons who are insensitive to and lack knowledge about maternal and child health

needs and therefore, fear that categorical perspective will be lost because maternal and child health services are competing with a wide variety of other health care interests.

- Considerable pressure on health planning agencies at both State and local levels to control the cost of physical health care through limiting hospital expansion and purchase of equipment has led some maternal and child health advocates to believe that health planning agencies will have limited time for and interest in maternal and child health.
- Few incentives exist for maternal and child health advocates to engage in integrated planning activities because they perceive few financial rewards accruing from such involvement, and the benefits of coordinated planning do not outweigh the time and effort spent away from direct provision of maternal and child health services or program planning activities.

Significant barriers to health planning agency integration of maternal and child health include the following:

- Maternal and child health professionals and advocates are often not represented on either statewide health coordinating councils or on health systems agency boards.
- The pressure on health planning agencies to demonstrate successful cost containment combined with funding limitations has caused many planning agencies to focus their activities on the institutional health system, a system with only limited relevance to child health concerns.
- Preoccupation with cost containment has also resulted in the commitment of a substantial amount of planning agency resources to regulatory functions, particularly those activities related to "certificate of need." Particularly in small agencies, this often results in very limited attention to the resource development activities and preventive health strategies that are natural allies of child health efforts.
- Unique requirements and processes for maternal and child health program funding requests often do not fit the general review criteria used by both health services agencies and statewide health coordinating councils in their review and evaluation of proposed projects. Effective evaluation of proposals requires the development of, (1) a knowledge base specific to maternal and child health needs and, (2) a set of criteria appropriate to these programs; neither exists at present.
- The variety of funding sources and administrative systems for maternal and child health services at the Federal, State and local levels complicates efforts to integrate planning.

In spite of these serious barriers to integrated planning, significant incentives do exist for increased integration. These include:

- Key elements in the maternal and child health field, including the American Academy of Pediatrics and child advocacy groups, are encouraging the participation of their members in health planning activities.
- The role of the health planning system and its impact on future

maternal and child health services, especially through reviews of Certificate of Need and appropriateness related to child health, virtually mandate the participation of maternal and child health interests in the health planning system.

- Increased block grant and revenue sharing funding would minimize categorical funding for maternal and child health services unless maternal and child health advocates are actively and purposefully involved in health system planning.
- Improved data collection and analysis in maternal and child health are possible through integrated planning activities. The population-based planning perspective that is characteristic of health systems planning has the potential for encouraging prevention, health education, and community health promotion services and activities, all of which are particularly relevant to child health.

CURRENT EXPERIENCE IN INTEGRATING CHILD HEALTH CONCERNS INTO HEALTH SYSTEMS PLANNING

The roles and responsibilities of health planning agencies at the State and regional levels can be grouped into five general categories. (See table 1.) Each of these categories has the potential for increasing agency activity in the area of child health.

TABLE 1. Health Planning Agency Roles and Responsibilities

Planning	Capacity building
Issue identification	Agency management
Plan development	Data management
Planning guidance	Methods development
Needs analysis	Research
Health status–health resource studies	Technical assistance
Target area analysis	Board-council support
	Continuing education
Policy advice and/or formulation	**Regulation**
Policy analysis	Certificate of need
Policy recommendations	Federal funds review
Legislative program review	Appropriateness review
Program development	
Public education	
Advocacy	
Plan implementation	
Interagency agreements	
Coordination	

In spite of a general perception to the contrary, survey evidence indicates that a substantial amount of attention to child health has

transpired at the health systems agency level. This attention has been focused primarily on the agency's planning role. In addition, a large number of agencies have addressed the issue of obstetric-pediatric bed supply, but primarily in the context of acute hospital bed need rather than within a broader maternal and child health perspective.

A recent survey by the Boston University Center for Health Planning of HSAs throughout the United States indicates that health systems agencies have focused primarily on five areas within child health: infant mortality; prenatal care; teenage pregnancy and family planning; immunization and general prevention; and fluoridation, with special emphasis on fluoride rinse programs. A summary of the manner in which HSAs have addressed these areas is briefly outlined below.

Infant Mortality

Problems Identified

- Rate variations by area and by reason for variance
- Associated factors including race, age of mother, area (urban, suburban, rural, elevational), birth weight, service availability (hospitals, clinics, manpower)

Recommended Solutions

- Goal setting related to reduction of mortality rates
- Study and expand accessibility to services, with attention to regionalized perinatal services; study expanded use in hospitals and clinics of nurse midwife, nurse practitioner, physicians assistants
- Inclusion of health education in perinatal services, including dietary counseling and family planning
- Funding-reimbursement support and expansion of Women, Infants and Children (WIC), Maternity and Infant Care (MIC) programs; improve third-party reimbursement; seek demonstration grants
- The development of more comprehensive data bases in cooperation with PSRO's and State health departments

Prenatal Care

Problems Identified

- Problems with service delivery are related to public awareness, accessibility, low utilization, quality (including the effects of service quality on infant-maternal deaths), maldistribution, and lack of coordination
- Problems with education are related to child birth, prenatal, parenting, family planning, high risk factors (particularly to teens and minorities)

- The reimbursement system is inadequate for prenatal care and education
- Training of nurse midwives, nurse practitioners, and staff of hospitals providing obstetrical services is not uniformly adequate
- More on the above problems is needed as well as on the number of women receiving care and the relationship of low birth weight to extent of prenatal care

Recommended Solutions

- *Services:* Develop network of regionalized perinatal services, education programs and outreach programs; recruit medical doctors to underserved areas; increase ambulatory care coverage
- *Education:* Evaluate, extend, and develop new public information campaigns, with particular attention to populations at risk
- *Reimbursement:* Encourage third-party payers to cover prenatal education as well as other prenatal care services and support the establishment of better reimbursement rates and methods
- *Training:* Provide education and support for nurse midwives, registered nurses, physicians assistants, and nurse practitioners and support childbirth education campaigns in hospitals providing obstetrical services
- *Data:* Work with PSRO's to develop more comprehensive data bases on areas of need, utilization of services, outcomes, etc.

Family Planning

Problems Identified

- *Services:* Lack of data to support need for services in many areas; insufficient services where need is documented; lack of knowledge of or interest in services where the need is documented
- *Funding:* Lack of funding for programs and insurance coverage for program services

Documented Solutions

- *Services:* Review current services and expand where necessary; establish family planning clinics; develop sex education–family education programs in schools and coordinate referral programs; provide hospital services during post partum period; develop outreach programs for teens and other high risk populations; and develop data and assessment programs
- *Funding:* Support legislative efforts to change third-party payer insurance; increase levels of Title XX and Medicaid funding; and use of Medicaid funds for abortions

Teenage Pregnancy

Problems Identified

- *Mortality rates:* Teens are at risk for low birth weight, birth defects, and high infant mortality rates
- *Education:* Lack of educational programs and family planning services for teens; controversy over parental consent requirements

Recommended Solutions

- *Education:* Expansion of in-school and outreach programs for counseling, contraceptive information, prenatal care, family planning, and parenting
- *Legislation:* Laws regarding parental consent for education services and for abortions should be reexamined and amended
- *Funding:* Funding sources and innovative demonstration programs should be investigated

Immunization

Problems Identified

- *Education:* Present immunization legislation is not properly enforced; little or no consumer realization of the importance of immunization has been noted
- *Service:* Physician shortages, lack of transportation
- *Reimbursement:* Lack of third-party coverage

Recommended Solutions

- *Legislation:* Present legislation should be enforced and new legislation developed to delineate responsibility for immunization and enforce compliance
- *Education:* Public awareness and outreach programs should be developed, special clinics set up, and coordination between school districts and providers improved; improved strategies should be developed to increase levels of immunization, including better health education, enforced school entry requirements, hospital discharge planning, health department tracking programs, and Public Health Code amendments to clarify requirements

A series of interviews with health systems agency staff members indicate that three major problems hamper HSA activity in the child health area: fragmentation of programs, Federal and State emphasis on regulatory activities, and lack of data and methods to facilitate small area targeting and to identify local manifestations of the "new morbidity."

Fragmentation of Programs

Ironically, various government interventions have significantly contributed to what health planners perceive to be the major problem with child health care—fragmentation of programs and services. A definite lack of continuity is present in primary care among private practice physicians, public well-child clinics, school health programs, and numerous other "providers" established to overcome problems of access to services. Fragmentation of care is most dramatic for handicapped children. In addition, little coordination occurs between the child health system and other systems such as education and social services. For example, the multiple needs of unwed teenage mothers require intersystem cooperation, which is often lacking.

Federal-State Emphasis on Regulatory Activities

Health systems agencies from various parts of the Nation report little or no cooperation with their State health planning and development agencies concerning child health; the preoccupation of these State agencies with regulatory issues is a possible explanation.

Lack of Data

Some HSAs perceive a need for additional national data and guidelines in the area of child health. However, most indicate that their foremost problem is lack of data and analytic methods to deal with the small area targeting, which is so essential to effective intervention in child health problems. An additional problem is the lack of data (and the inapplicability of traditional sources) for analysis of that set of childhood health problems termed "the new morbidity."

Health planning related to child health exists to a lesser degree at a nationwide State level than it does at the HSA level. Although several States have included the broad concerns of child health in their State health plan, many more have limited their activity to regulations of obstetric and pediatric acute care and the regionalization of tertiary services such as neonatal intensive care.

Likewise, the States are more restrained in their planning efforts, as compared to the HSA level, by what Beverlee Myers terms the "proliferation of categorical programs, further complicated by differing eligibility, requirements and multiple reporting mechanisms, that characterizes child health" (*5*). In States where the statewide health coordinating councils have shown interest in including the Title V Plan in their Federal funds review, the tendency of State Title V agencies to focus almost exclusively on Title V-funded programs apparently means that their plans are in effect funding applications rather than plans that identify maternal and child health needs or overall programs within the State. Although a few States have used the flexibility inherent in Title V to assess needs and

to develop a statewide plan for providing services to mothers and children, most have not considered such planning and development activities to be their responsibility.

In response to these problems, substantial interest has materialized in the development of a single, clearly identified and accountable locus of responsibility for child health at the State level. As described by Beverlee Myers (*5*), this unit would be responsible for the: planning of priorities; collection of data on health status, needs, and services; monitoring and evaluation of outcomes; coordination of disparate delivery and financing mechanisms and; ensurance that standards of access and quality of care are met. Until such coordination is implemented, planning activities in maternal and child health at the State level are unlikely to be very effective and any meaningful review of the use of Federal funds is highly improbable.

ALTERNATIVE APPROACHES TO INTEGRATION

The possibilities for integration of child health in general health planning are myriad. This is evident given the multiple levels of involvement, the variety of health planning agency roles and responsibilities, and the richness and depth of child health issues and concerns. Specific approaches can, however, be grouped into four alternatives and include:

(1) The status quo
(2) The addition of child health planning and representatives of child health interests as a major, formal component of health systems planning similar to the recent addition of mental health planning in the Health Planning and Resource Development Amendments of 1979
(3) Parallel development of a coordinate maternal and child health planning capacity within the context of maternal and child health programs with significant interaction with health systems planning at the "intersections" of the two activities (for example, data management, issue identification, needs assessment, and Federal funds review)
(4) Voluntary involvement of child health interests in health systems planning, along the lines suggested by the American Academy of Pediatrics and including voluntary development of child health planning tools, including data bases, needs assessments, and plans devoted to child health concerns

Choice among these alternatives is contingent upon one's beliefs about health planning and about the risks and benefits involved in various types of integration.

Maintenance of the *status quo* would, in effect, mean that no focal point for coordination of child health planning would be developed at either the Federal or State level. At the same time, depending upon local initiative, individual health planning agencies might choose to devote significant portions of both their plan development and plan implementation capacity to issues directly affecting child health. Current limitations

relative to the type of data and methods available would continue, as would the Federal-State concentration on cost containment as the measure of agency effectiveness. Whereas the risk of planning agency interference in maternal and child health activities would be minimized, the opportunities to build a capacity within the planning agency to make a positive contribution to the area of child health would continue to be limited. In light of the Federal funding shift away from selected categorical programs and human services, this failure to build a child health planning capacity could have significant negative effects over time. In short, the opportunity to build a constituency for advocacy within the health systems planning structure will have been foregone.

Some argue that child health interests can only be reflected in health systems planning if *formal representation* of child health advocates is required on health planning agency boards and if the agencies are required to include a child health component in their plans. This reasoning follows earlier arguments requiring participation of mental health, environmental health, aging, and alcohol-drug abuse constituencies in the planning process; most recently, mental health participation was in fact added to the representation on agency boards. Although required participation would guarantee that child health interests would gain a specific spokesperson voicing their concerns, a substantial number of individuals argue that the planning agency board or council should not function as a forum for individual interest groups. Rather, a more workable concept would entail representation embodied in the health planning legislative that would call for the gathering together of a wide range of community participants to consider the needs of the community at large and to debate these needs based on a communitywide and systemswide perspective.

The very arguments noted earlier regarding the importance of a broad systems perspective to the resolution of child health problems apparently suggest that required participation would not lead to the goals sought by child health advocates. Alternatively, required representation could assist in overcoming the most obvious barriers to integration, specifically the fear that no members of the planning agency boards are sensitive to and knowledgeable about child health issues and concerns.

Perhaps the most practical argument against assigning child health responsibilities to the health planning agency is the low level of funding and resources available to health systems planning. With every additional mandate, accompanied by few or no additional funds, the agency is evermore hardpressed to be effective in its areas of responsibility. Thus, requiring integration of child health into the health planning process has the very real possibility of paper success and actual failure in the realization of the objectives of either systematic planning or child health advocacy.

The *parallel development* of a coordinated maternal and child health planning capacity within the context of maternal and child health programs has the benefit of addressing a central structural deficiency within the maternal and child health system and, at the same time, facilitating integration. Furthermore, this *parallel development* could be

supported by the interaction of health systems planning at the "intersections" of the maternal and child health planning capacity and the maternal and child health programs.

The single, most significant element in the effective integration of child health into the generic health planning system is a unified plan for maternal and child health at the State level. At present, however, multiple separate application and "plans" are required for each of numerous Federal and State categorical programs. These requirements interfere with all attempts, at whatever level, to carry out effective, coordinated planning and, most importantly, result in the absence of a strategic focal point for deliberation on resource allocation related to child health. Efforts at child health planning integration at both the State and local levels up to this time have failed largely due to the absence of such a focal point. Even in States where attempts have been made to develop such a vehicle, they have remained fragmented and have included only portions of the wide range of child health services and funding sources.

The major argument against the development of such a focal point is that it could lead to further erosion of maternal and child professional autonomy in resource allocation. Although this is a legitimate concern, the general erosion of moneys for public health and human services necessitates the prompt strengthening of the strategic planning capacity of maternal and child health in spite of the risks. This would allow program planning for child health to be integrated with health systems planning for critical activities such as data and methods development, needs assessment, public awareness and education efforts, plan development, criteria development for various review activities, and resource development.

In those health systems agencies where real progress has been made in addressing the issues of child health, that progress has most often been the result of concerned board and staff members working together to initiate data collection and planning activities and to raise agency consciousness about the concerns of child health. Often these efforts have been spurred by, or assisted by, the *voluntary involvement* of child health advocates and interest groups. The activities of the American Academy of Pediatrics and its member units have been particularly effective, as have been the activities of numerous local child health advocate groups. However, without some structural change as described above, the ability to overcome the existing barriers to truly effective integration through voluntary involvement, as effective as it can be, is unlikely.

LEVELS AND TYPES OF INTEGRATION

Although a strategic focal point at the State level is apparently the most essential element of integration of child health concerns into the health planning process at either the State or local level, a wide variety of additional points do exist that can facilitate fruitful interaction between the maternal and child health community and the health planning community. These are the so-called "intersections" mentioned earlier, as shown in table 2.

TABLE 2. Areas for Potential Integration of State Health Planning Development Agencies and Health Systems Agencies

Public participation	
State:	SHCC service; joint development of legislative proposals and policy recommendations; public awareness–education programs; advocacy
HSA:	Board-subarea council service; public awareness–education programs; advocacy
Planning	
State:	Methods development; health status–health resource studies; health resources inventory; statewide need analysis; development of planning guidance (including plan format); special target area analyses; issue identification
HSA:	Methods development; health status–health resources analyses; health resources inventory; needs assessment; target area analysis; issue identification
Technical assistance	
State:	Joint staff training programs; SHCC education
HSA:	Board-subarea council education; joint staff training programs
Regulation	
State:	Development of criteria for Federal funds review; development of criteria for statewide appropriateness review; development of criteria for CON review
HSA:	Development of local criteria for Federal funds review; development of criteria for local appropriateness review activities; development of criteria for CON review
Data management	
State:	Development of joint protocols; development of unified statewide data base-reporting system for maternal and child health

The choice of priority "intersections" will depend to a great degree on the specific conditions present in the State or local situation. A health systems agency with a highly developed data management capability might place its emphasis on the development of quantitative tools to permit small area targeting of child health resources. On the other hand, an agency within a State confronting major legislative initiatives in the area of child health issues may assign its highest priority to legislative program review or the development of a policy review capacity.

Priorities will also vary at the State level. However, beyond the development of a coordinated planning capacity at the State program unit, the developments that States will find most profitable are those concerning (1) the development of criteria, guidelines and standards, (2) the improvement of data and methods for target area analysis and, (3) the development of issue identification techniques and an issue identification process to ensure that valuable and scarce planning resources are devoted to the most pressing problems within the child health area of concern.

One of the most effective ways to meld the systems perspective, so fundamental to both general and child health planning, with the more focussed approach to resource development, so essential at a period of

limited resources and planning capacity, is to develop a planning approach that combines a systematic analysis of health status and resources with an issue-oriented approach to goal setting and action; this approach is especially relevant to child health concerns and offers perhaps the best opportunity for effective integration at the State and local level.

REFERENCES

(1) *Michigan Child Health Plan.*

(2) *California State Health Plan, 1980–1985.*

(3) Blum, H. L. "Planning for Health." New York: Human Services Press, 1974.

(4) Tompkins, R. F. "Children's Advocacy and Primary Health Care." In *Health Politics, Policy and Law.* Paper presented at the Congressional Health Staff Seminar, Washington, D.C., 1978, unpublished.

(5) Myers, B. "Child Health: Can the States Do It Better?" Speech to the Congressional Health Staff Service Seminar, National Health Policy Forum. Washington, D.C., August 8, 1979.

FEDERAL ADMINISTRATIVE ARRANGEMENTS FOR MATERNAL AND CHILD HEALTH

by
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The purpose of this paper is to present and analyze options for the organization of Federal programs and activities focused on improving maternal and child health.

Scope

The emphasis is on programs specifically related to maternal and child health, but the most important organizational issues concern those programs that provide or finance health services that include, but are not confined to mothers and children, such as community mental centers and Medicaid. In addition, the implications of organizational alternatives for those programs which might improve maternal and child health services as a subsidiary objective, such as health planning, health statistics, and health promotion and disease prevention activities are examined.

The primary focus is on programs within the Department of Health and Human Services (DHHS). However, some attention is also given to the activities in the Departments of Agriculutre and Education. Many other Departments have activities affecting maternal and child health; however, the importance of the food and school-based health programs for improved health status as well as access to services demonstrate the relevance and difficulties of interdepartmental coordination.

Because a primary goal of maternal and child health public policy has been the provision of services to low-income populations, programs for the poor will be emphasized. Whether this focus is appropriate for the future is not an organizational issue but a policy issue, and a change of focus would require a major policy shift.

A discussion of Regional Office organization of the DHHS is included, both as separate from and a derivative of headquarters organization and programs.

Congressional committee jurisdiction will receive some specific attention an an issue and as a factor influencing Executive Branch fragmentation and policy orientation.

The role of the States will be discussed as a context for Federal organization options. State organization, per se, is not included.

The complexity of this organizational scope reflects the reality of current maternal and child health activities within the Federal Government. As the sections on the organization of Federal programs, past and present, make clear, the current pattern and its historic evaluation is complex. That complexity reflects the typical result of policymaking in a pluralistic society and a Government structure that stimulates and protects diversity in governmental programs through the constitutional separation of powers. The panoply of programs affecting maternal and child health may seem needlessly fragmented, but similar patterns in American Government are not exceptional, as illustrated by water resources programs, energy activities, and education programs. The "disjointed incrementalism" of social policy formulation, the power of interest groups, and the broad range of modern social policy interests are all important factors in the current patterns of maternal and child health programs. Any proposed change must cope with these realities, each of which has deep and honorable roots in the American political tradition.

Organization as a Derivative of Policy

Organization should derive from policy. Attempts to achieve policy objectives or increase efficiency or effectiveness through organizational change alone are usually doomed to failure. "When in doubt, reorganize" is too often an accurate description of the motivation behind organizational changes. Effective organizational arrangements must be built on policy commitments that have sufficient political backing.

Although organizational improvements can correct some obvious administrative flaws, such as gross duplication or excessive areas of control, the main tools of improved administrative efficiency are not found in organizational structure. Both effective and ineffective administration occurs within perfectly rational organizational arrangements.

Because policy objectives rather than improved efficiency should be the principal driving force behind organization change, this paper presents a number of options for arrangements and discusses the characteristics of each option. No final option is recommended because that choice must derive from the policy conclusions of the Panel.

The Importance of People

People are more important than any organizational structure. Strategies that build and sustain competent staff and the effects on staff of organizational changes will be discussed. There is much cause for pessimism in the trends of the last 10 years concerning Federal career

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staff. Organizational changes without accompanying strategies for strengthening the career staff are likely to have disappointing results.

HISTORY OF ORGANIZATION OF FEDERAL PROGRAMS DIRECTLY AFFECTING MATERNAL AND CHILD HEALTH

Major events in the organization of those Federal programs intended to have a direct effect on maternal and child health are described to illustrate the interaction between the development of national policy and the changes in organization. Some events were not exclusively or principally concerned with maternal and child health, but they are included to provide a necessary context for the programs explicitly focused. More detail is given on recent events, and the current structure of maternal and child health activities is explained.

Establishment and Early Activities of the Children's Bureau, 1912–1930

The Children's Bureau was established as a part of the social reform movement of the "progressive" era in the early 20th century. The early Children's Bureau had an information gathering and advocacy function. Because Federal social programs were minimal, a health and welfare related organizational base did not exist, and the Children's Bureau was placed in the Labor Department, which was itself a product of this era of social reform.

The scope of the Children's Bureau concerns was much broader than health, but in its early activities deficits in infant and maternal care were documented. The Bureau played a role in developing the Sheppard-Towner Act of 1921 and was given administrative responsibility for this new program of grant assistance to the States for development of educational programs to improve infant care. This program lapsed in 1929, demonstrating the fragile nature of political commitment to maternal and child health in the twenties.

Title V of the Social Security Act of 1935

The most sweeping piece of social legislation ever approved in this country was the Social Security Act of 1935. Included in that Act (under Title V) were grants to the States for maternal and child health and crippled children services. These grant programs were administered by an expanded Children's Bureau, following the pattern of the Sheppard-Towner Act. The programs thus had a clear organizational identity related to children, rather than being located with the other Federal health programs in the Public Health Service (PHS). The Title V health programs

were part of a broader strategy to provide assistance to children in need, particularly low income children. This assistance was consistent with the intent of the Act to provide security against the worst effects of the depression.

The Title V program grants supported public services primarily through State and local health departments. This channeling of effort through State governments was in sharp contrast to the administrative pattern established by the Social Security Board for the pension programs under the Act.

An attempt was made by the Public Health Service in 1946 to absorb the Title V child health programs. This effort was fought by the leadership of the Children's Bureau who marshalled the support of external and private sector child advocates to defeat the attempt to shift maternal and child health programs from the Children's Bureau. The transfer was finally effected in 1970 in a very different programmatic and organizational context.

During the thirties and forties Federal health programs remained modest. Communicable disease control, biomedical research programs and some parallel grants to the States for other public health functions were the most clear-cut Federal health responsibilities in addition to the Title V programs.

In 1946 the Hill–Burton hospital construction grant program represented a cautious beginning to the Federal role in developing the base for private sector community health services.

The Title V programs therefore were administered from 1935–1965, without much need for coordination with other Federal health programs. This minimal Federal role in health, partially the result of determined opposition by organized medicine, meant that the maternal and child health Title V programs existed in relative isolation. Health insurance, although discussed, was not included in the original Social Security Act. Except for direct delivery of services to Federal beneficiaries, such as veterans and merchant seamen, the Federal Government was reluctant to provide medical care to populations in need. The Title V programs, therefore, represented a policy commitment to children, albeit modest, that contrasted with the restricted social policy for the rest of the population.

Organizational Arrangements for Maternal and Child Health Within the Department of Health, Education, and Welfare, 1953-1970

The Department of Health, Education, and Welfare (DHEW) (now Health and Human Services) was created in 1953 but had a long gestation beginning in 1939 with the creation of the Federal Security Agency (FSA). That agency encompassed the Social Security Board, the Public Health Service, the Office of Education, and a number of other agencies. Programs of the Children's Bureau that were clearly akin to those in the FSA were not transferred to the FSA from the Labor Department until 1946. This transfer split the Children's Bureau and disturbed its leaders

and supporters, p[illegible]ally because the FSA was not a cabinet department. Nevertheless, the [illegible]aternal and child health program retained its identity and did not bec[illegible]me part of the Public Health Service, the Office of Education, or any other major agency within the FSA.

In the 1960's a number of new programs and organizations were created within DHEW that made the relationships among Title V and other maternal and child health-related programs much more complex. In 1962 the National Institute of Child Health and Human Development (NICHD) was created as part of the National Institutes of Health (NIH). Because NICHD has always been headed by a pediatrician, its inception represents a new emphasis on research and a new source of professional expertise concerned with maternal and child health. There has never been any serious proposal to combine NICHD with the Children's Bureau health programs.

New programs for the mentally retarded and Federal support for community-based mental health centers were created in 1963.

The most significant event of this period affecting the Federal role in health and the provision of services to low income mothers and children was the passage of the Medicaid legislation in 1965. Added to the Medicare bill by the Congress almost as an afterthought, the Medicaid program provided Federal and State funding for health services for the poor which minimized previous efforts. Building on the provision of payments to providers of services under the welfare program, Medicaid represented a commitment to pay for health services, with a somewhat naive expectation that those payments would buy the poor into the "mainstream" of American medical care. This program, despite its many limitations, meant that more mothers and children would have some of their medical care paid for by Medicaid than would receive services through Title V programs. The degree of private provider participation, although still very incomplete, contrasted with the public agency orientation of the maternal and child health program under Title V.

In terms of organizational structure, the passage of the Medicare and Medicaid legislation accentuated a splintering of health policy and administration within DHEW. Title V and Medicaid were in different parts of the Social and Rehabilitation Service, the Department's welfare arm. Medicare was administered by the Social Security Administration, the "respectable" income protection program with broad entitlement for the whole (aged) population regardless of need.

Meanwhile, the Public Health Service programs that were concerned with maternal and child health, either exclusively or as byproducts of services for a wider population, were multiplying. Within the PHS, the responsibilities were also diffused. NICHD was part of NIH. The Community Mental Health Centers were within the National Institute of Mental Health (NIMH) which moved from NIH to independent PHS bureau status in 1967, and then was made part of the Health Services and Mental Health Administration (HSMHA) (a catch-all health service organization in the PHS) in 1968. HSMHA also contained the Hill-Burton program, communicable and chronic disease control, the Indian Health Service, grant support for community health centers for the poor (begun in 1967), comprehensive health planning, the National Center for Health

Statistics (NCHS) and Health Services Research, and other PHS programs concerned with reform of health services and improving access to care. All of these programs had some bearing, either direct or indirect, on services for mothers and children.

The evolving pattern of health responsibilities within DHEW was even more diffuse than it appears. The Office of Education had some health interests, and a unit that included a health component was established in the Office of the Secretary of Education under the Model Cities program. Many of the social services components of the welfare program affected maternal and child health. In the reorganization of the PHS in 1968, the Assistant Secretary for Health (ASH) was given line authority for the PHS programs to which was added the Food and Drug Administration (FDA), and the ASH was also given a role in coordinating health policy across the entire Department. This coordinating role remained a paper function with little actual effect on programs outside the PHS.

Activities Outside DHEW with Impact on Maternal and Child Health

The ferment of social policy in the mid-1960's also spawned substantial health programs outside of DHEW. The Office of Economic Opportunity (OEO) was deliberately created outside the framework of the established cabinet departments in the Executive Office of the President to mount a "War on Poverty" unencumbered by the attitudes, administrative patterns, Congressional relationships, and professional biases associated with the line departments. Three OEO programs had particular implications for maternal and child health. Project Head Start contained a health services component as a part of a larger program intended to overcome the effects of poverty on child development. The Neighborhood Health Centers offered comprehensive primary care to poor populations, including mothers and children. The OEO also started a program to improve nutrition for mothers and infants. These programs deliberately bypassed existing program mechanisms at both the Federal and State levels. Head Start and the Neighborhood Health Centers were transferred to DHEW when OEO was dismantled by the Nixon Administration in 1972–73.

The Department of Agriculture has mounted programs over the years that were intended, at least in part, to improve the nutrition of children, and recently, of pregnant and lactating women. Beginning in the New Deal with support for lunches and food stamps, both of which continue today, the recent development of the Special Supplemental Food Program for Women, Infants, and Children (WIC) has put the food programs directly in support of improved nutrition for those most likely to suffer from the effects of low incomes on nutritional intake. These food programs were derived from agricultural policies concerned with distribution of surplus farm products. These policies remain a political underpinning for the programs. During World War II a proposal to combine the school lunch program with the Office of Education in the FSA was

rejected because of the strong links to agricultural policies and the stabilization of markets.

The WIC program, however, with its basis in improved health through better nutrition and the use of medical determinations of need are much more directly linked to maternal and child health than other food programs. Yet, the link to agricultural policy and politics is still reflected in the administrative location of the food programs within the Department of Agriculture. DHEW, through the National Center for Health Statistics and other programs, has done some monitoring of nutritional status that has some impact on the food programs.

CURRENT ORGANIZATION OF FEDERAL PROGRAMS RELATING TO MATERNAL AND CHILD HEALTH

Charts I through IX show the organizational position of maternal and child health services within the Department of Health and Human Services and their relationships with each other and with other units within the Department. Charts X and XI described maternal and child health related elements of the Departments of Education and Agriculture.

Many programs have some impact on maternal and child health either as minor components of health programs or as support for broader programs focused on improved health status generally. The former includes most of the research institutes at NIH. The latter includes income security programs such as the Aid for Dependent Children component of the welfare program. These minor or secondary effects on maternal and child health by other health programs are so pervasive that they would include most programs of DHHS except those specifically focused on the elderly.

Programs in other departments such as CHAMPUS, the program providing medical care for military dependents, the Consumer Product Safety Commission concerned specifically with the safety of toys and many other products, highway safety, air and water pollution control, nuclear safety, adequate housing, child labor laws, and criminal justice programs all affect child health in rather specific ways. The Federal programs addressing these issues are so embedded in other departments that the benefit of organizational or administrative links with DHHS programs appears to be doubtful. The food programs of the Department of Agriculture and the Department of Education represent major service systems that have substantial current impact on child health and a potential for a more significant role. However, no description of the organizational arrangements for these programs is included.

However, charts showing the food programs of the Department of Agriculture and the current structure of the Department of Education are included because these programs represent major service systems that have substantial current impact on child health and a potential for a more significant role.

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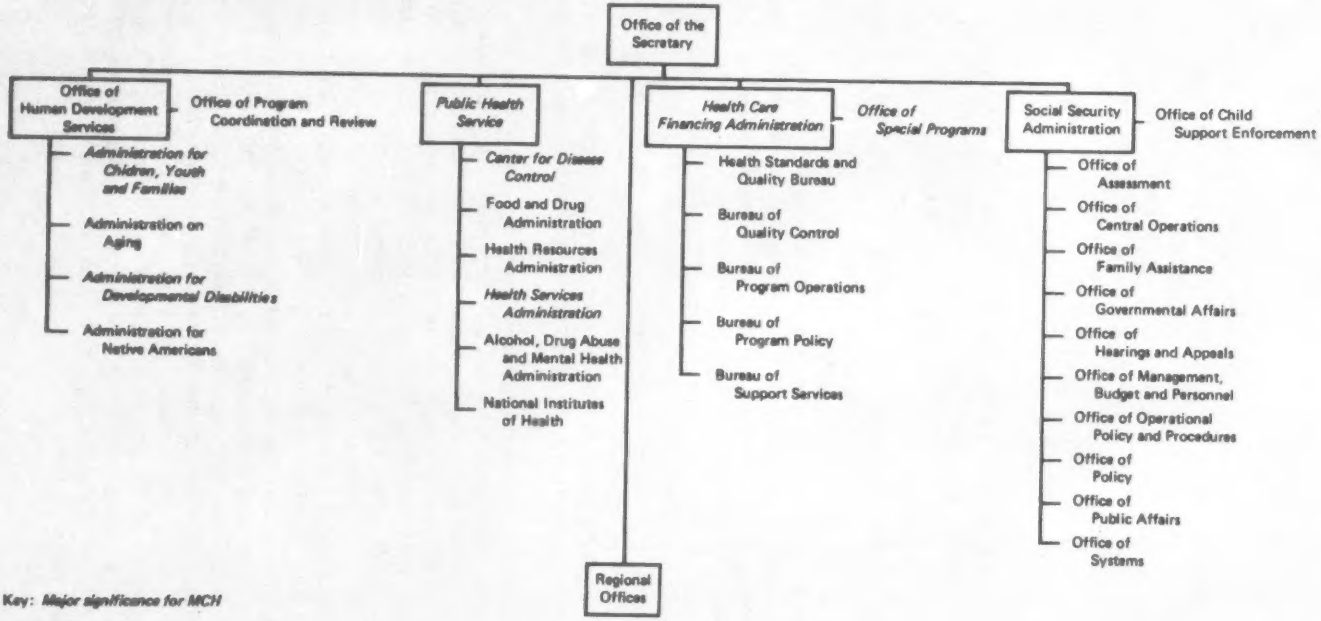
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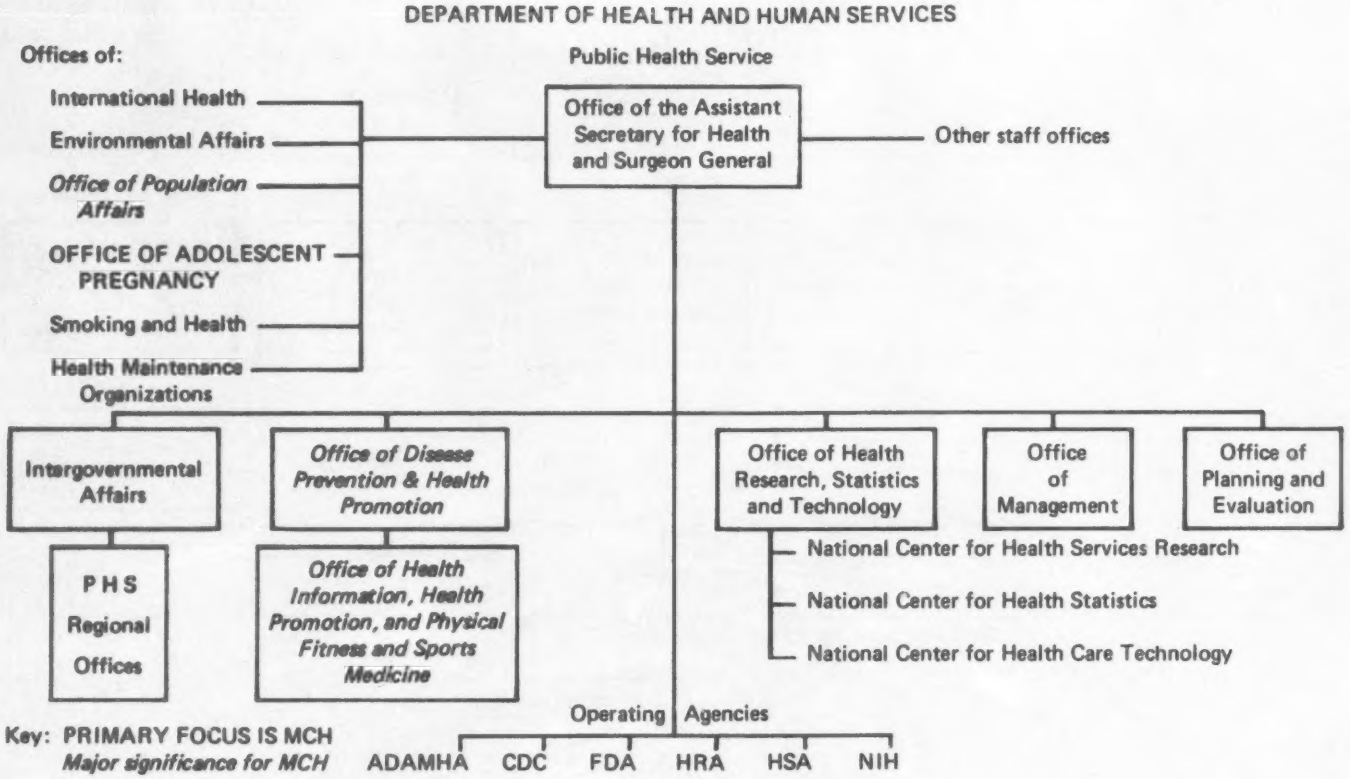
Key: *Major significance for MCH*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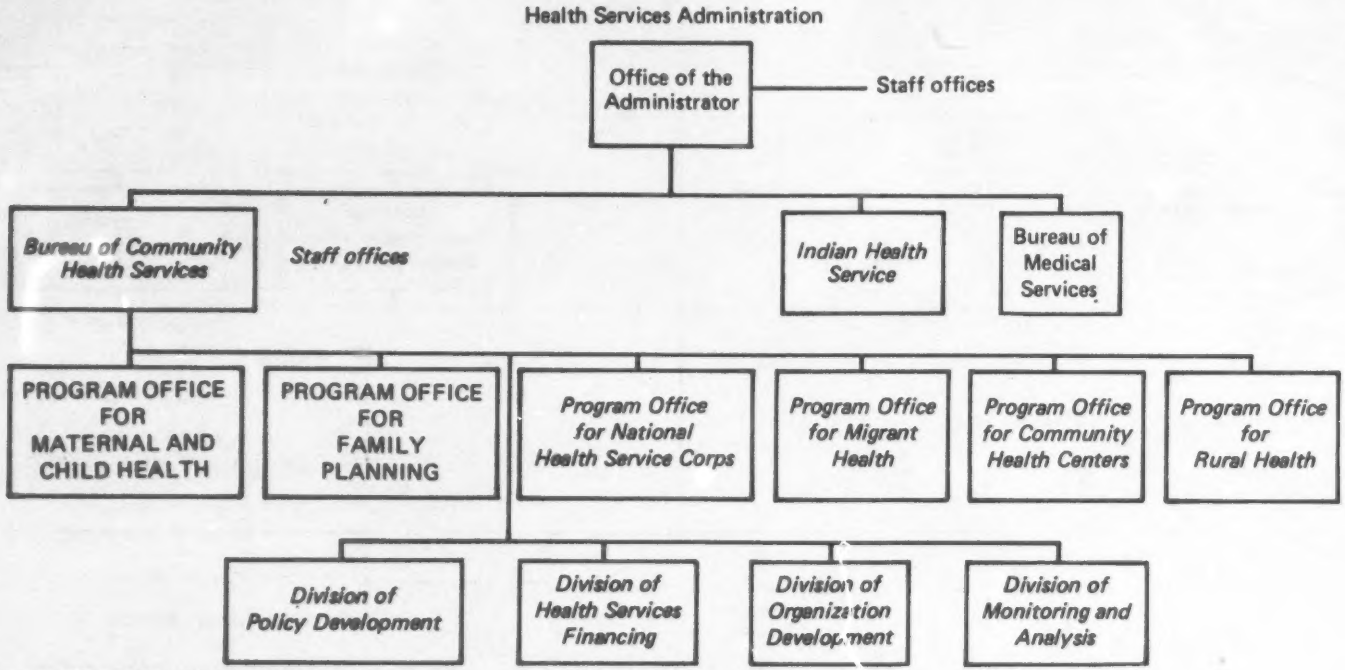
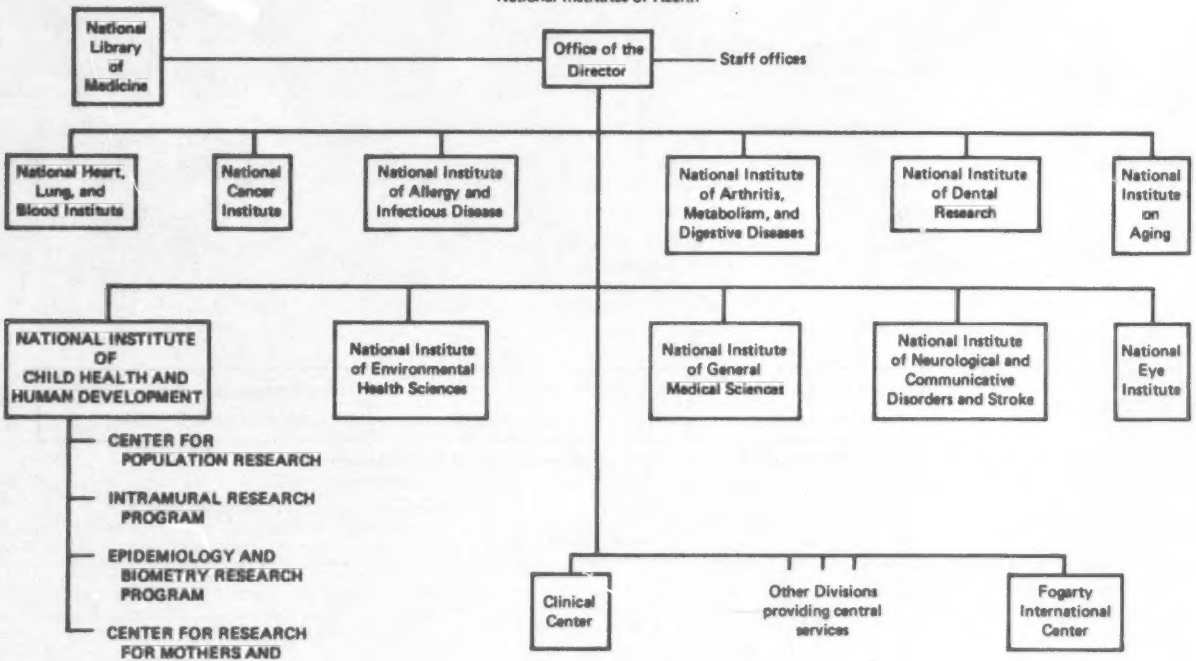
DEPARTMENT OF HEALTH AND HUMAN SERVICES


Health Services Administration
Office of the Administrator
Staff offices
Bureau of Community Health Services
Staff offices
Indian Health Service
Bureau of Medical Services
PROGRAM OFFICE FOR MATERNAL AND CHILD HEALTH
PROGRAM OFFICE FOR FAMILY PLANNING
Program Office for National Health Service Corps
Program Office for Migrant Health
Program Office for Community Health Centers
Program Office for Rural Health
Division of Policy Development
Division of Health Services Financing
Division of Organization Development
Division of Monitoring and Analysis

Key: **PRIMARY FOCUS IS MCH**
Major significance for MCH

PUBLIC HEALTH SERVICE

National Institutes of Health


National Library of Medicine
Office of the Director
Staff offices
National Heart, Lung, and Blood Institute
National Cancer Institute
National Institute of Allergy and Infectious Disease
National Institute of Arthritis, Metabolism, and Digestive Diseases
National Institute of Dental Research
National Institute on Aging
NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT
National Institute of Environmental Health Sciences
National Institute of General Medical Sciences
National Institute of Neurological and Communicative Disorders and Stroke
National Eye Institute
CENTER FOR POPULATION RESEARCH
INTRAMURAL RESEARCH PROGRAM
EPIDEMIOLOGY AND BIOMETRY RESEARCH PROGRAM
CENTER FOR RESEARCH FOR MOTHERS AND CHILDREN
Clinical Center
Other Divisions providing central services
Fogarty International Center

Key: PRIMARY FOCUS IS MCH
Major significance for MCH

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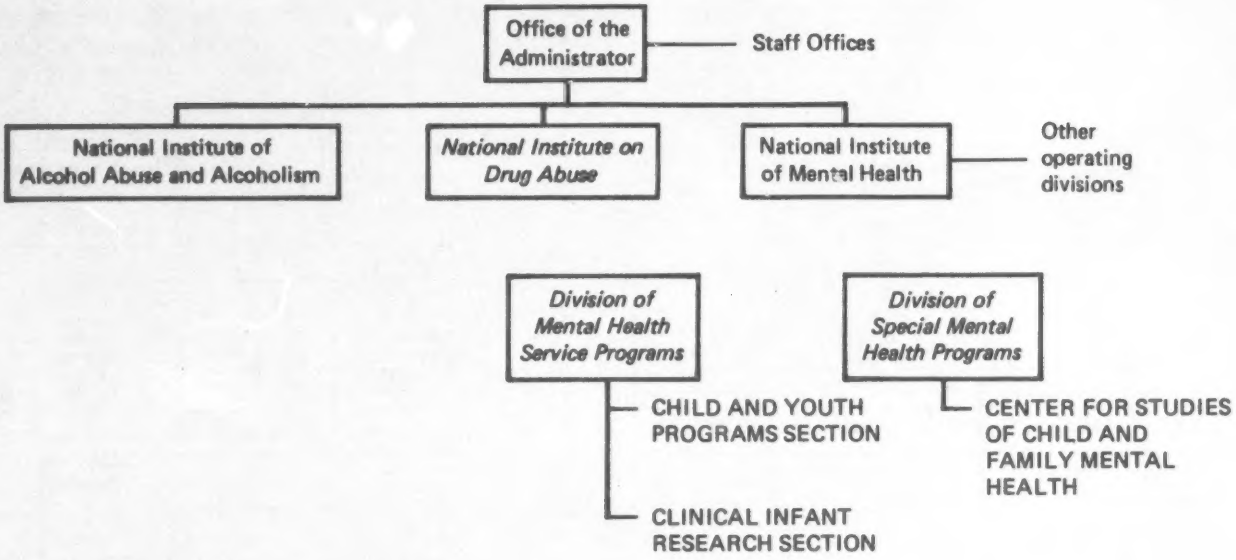
PUBLIC HEALTH SERVICE

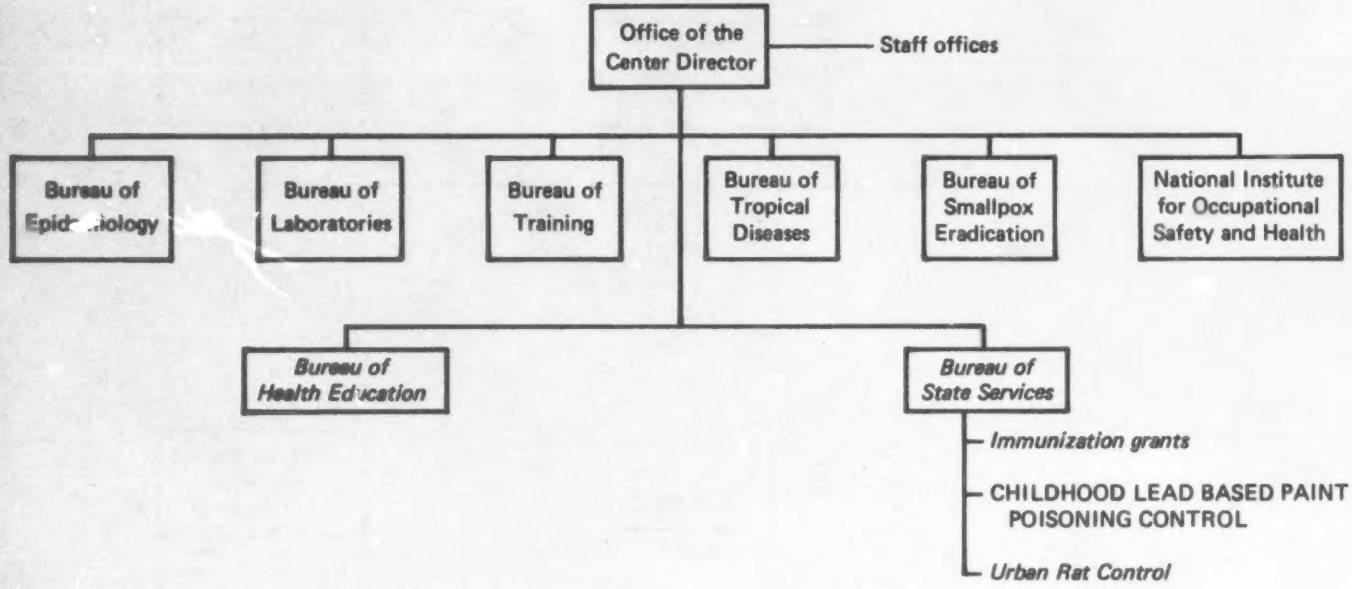
Alcohol, Drug Abuse, and Mental Health Administration


Office of the Administrator
Staff Offices
National Institute of Alcohol Abuse and Alcoholism
National Institute on Drug Abuse
National Institute of Mental Health
Other operating divisions
Division of Mental Health Service Programs
Division of Special Mental Health Programs
CHILD AND YOUTH PROGRAMS SECTION
CLINICAL INFANT RESEARCH SECTION
CENTER FOR STUDIES OF CHILD AND FAMILY MENTAL HEALTH

Key: PRIMARY FOCUS IS MCH
Major significance for MCH

PUBLIC HEALTH SERVICE

Center for Disease Control



Key: PRIMARY FOCUS IS MCH
Major significance for MCH

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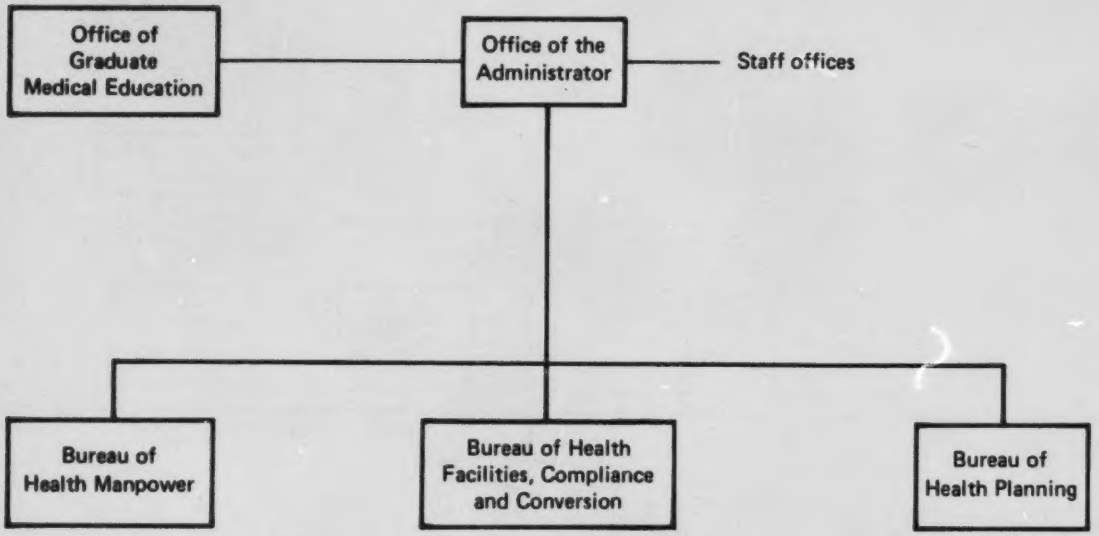
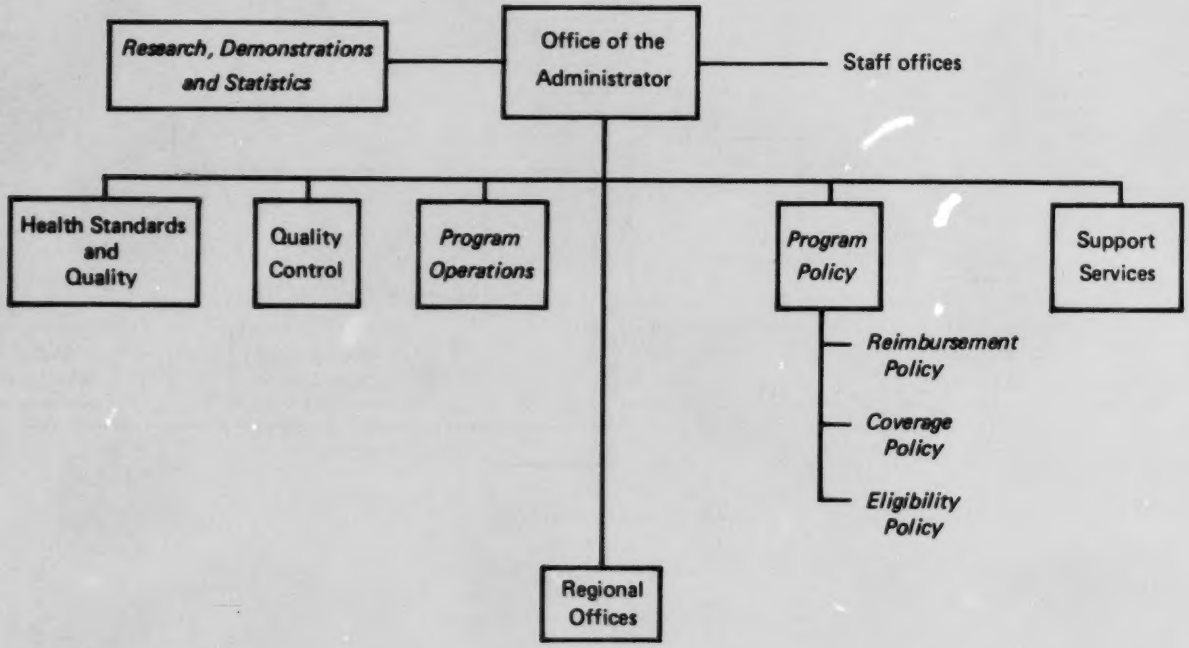
PUBLIC HEALTH SERVICE

Health Resources Administration


Office of Graduate Medical Education
Office of the Administrator
Staff offices
Bureau of Health Manpower
Bureau of Health Facilities, Compliance and Conversion
Bureau of Health Planning

DEPARTMENT OF HEALTH AND HUMAN SERVICES

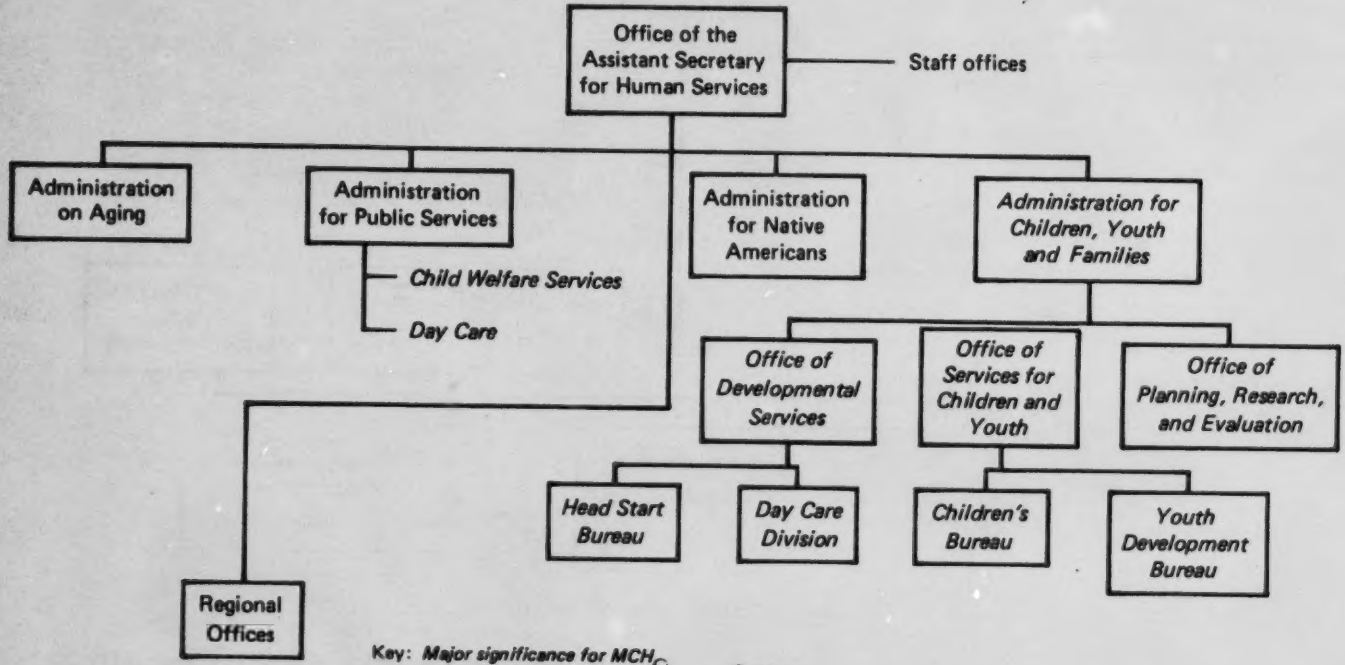
Health Care Financing Administration



Key: *Major significance for MCH*

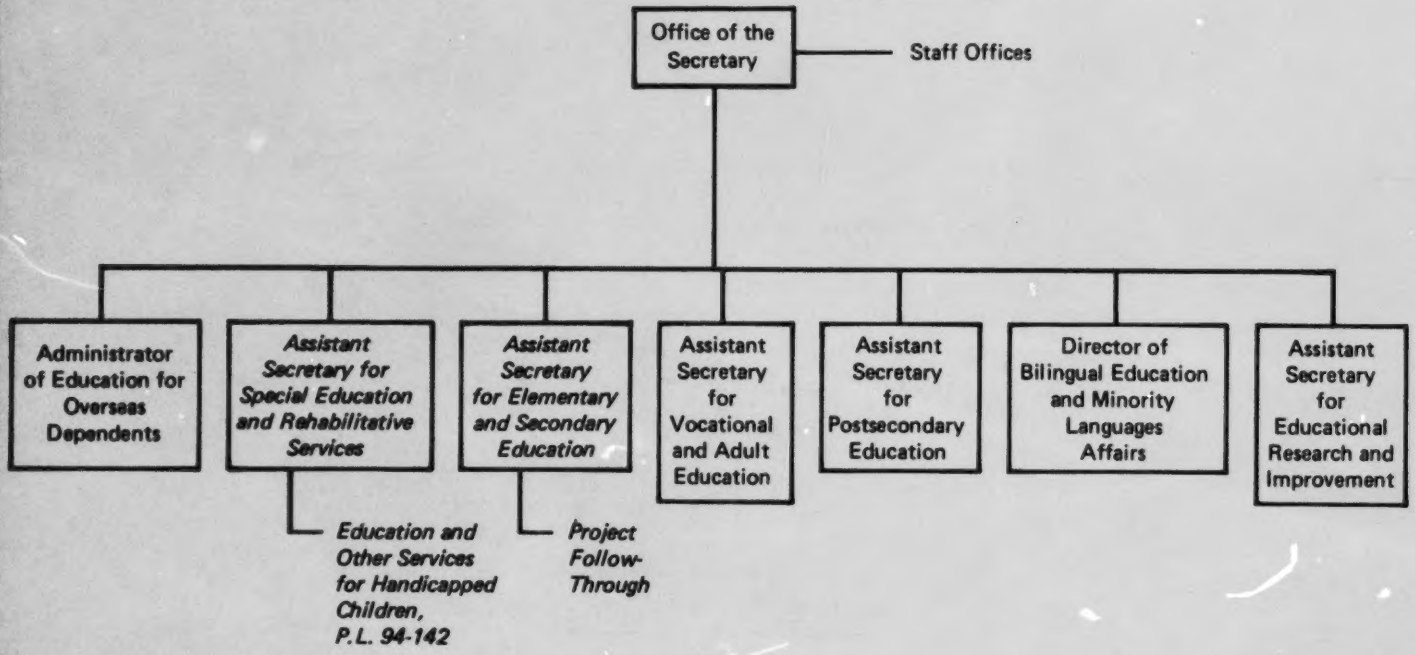
DEPARTMENT OF HEALTH AND HUMAN SERVICES

Office of Human Development Services



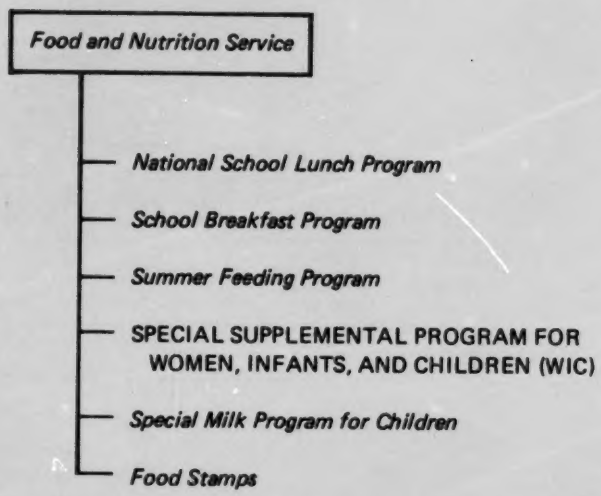
Key: *Major significance for MCH*

DEPARTMENT OF EDUCATION


Office of the Secretary
Staff Offices
Administrator of Education for Overseas Dependents
Assistant Secretary for Special Education and Rehabilitative Services
Assistant Secretary for Elementary and Secondary Education
Assistant Secretary for Vocational and Adult Education
Assistant Secretary for Postsecondary Education
Director of Bilingual Education and Minority Languages Affairs
Assistant Secretary for Educational Research and Improvement
Education and Other Services for Handicapped Children, P.L. 94-142
Project Follow-Through

Key: *Major significance for MCH*

DEPARTMENT OF AGRICULTURE


Food and Nutrition Service
National School Lunch Program
School Breakfast Program
Summer Feeding Program
SPECIAL SUPPLEMENTAL PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (WIC)
Special Milk Program for Children
Food Stamps

Key: PRIMARY FOCUS IS MCH
Major significance for MCH

GENERIC RATIONALES FOR ORGANIZATIONAL ARRANGEMENTS

Public administration theory and the study of American Government and politics provide some insights into the generic objectives of organizational arrangements. The following are some of the more frequently cited objectives of organizational restructuring in the Federal Government that may be pertinent to the organization of maternal and child health activities.

Focus of Responsibility and Accountability

If responsibility for social programs is diffused among several organizational units, it is more difficult to hold an individual administrator accountable for results. For example, if responsibility is divided between Federal and State Governments, it is more difficult to hold either accountable. Legislation may specify administrative arrangements that the program administrators can blame for ineffective performance, and division of responsibilities between regional offices and headquarters can obscure accountability. Administrative theory argues for clear-cut assignment of responsibility, but in reality a considerable amount of diffusion is the norm where the Federal Government is not directly responsible for the conduct of the activity. This situation is true in all grant programs and Medicaid, or where multiple policy objectives are to be served, as in the efforts to encourage more Medicaid financing for grant-supported health programs, such as community health centers. Rather than assigning clear-cut responsibility among competing administrative units, the political decision process typically avoids the issue and permits or even creates administrative ambiguity.

Another issue is where formal responsibility should be assigned in the hierarchy. Ever since the Brownlow report in 1937, public administration leaders have advocated giving all formal responsibilities to the Department head. This step ensures that the President and his cabinet officers are accountable for the conduct of the Department's activities. In some cases the Secretary's responsibilities are so broad, the Secretary of DHHS for example, that some would argue that responsibility should be legislatively assigned to lower levels with more limited scope.

Coordination of Related Programs

Related programs usually can be more easily coordinated if they are assigned to the same organizational unit. This simple premise is often difficult to achieve because programs often have several sets of important relationships. For example, the WIC program in Agriculture is justified on the basis of its health impact and should be coordinated with health services programs at the local level. WIC is also related to other food programs in the Agriculture Department and to American agricultural policy. Solving one coordination problem may accentuate another.

Creation of mechanisms with specific coordinating responsibilities outside the line authority may help coordination among scattered programs but at the cost of diffusing responsibility and accountability.

Function Versus Target Population

Most programs are organized on two major principles. The most common is organization according to function, e.g., health, income protection, defense, or energy. The other is organization according to target population, e.g., children, older Americans, farmers, or labor. In practice, these alternatives are usually not totally distinct and organization according to function is common within broader organizations focused on a target population. For example, for organization purposes "agriculture" may be considered a function or a population, but the latter is more pertinent as a political reality.

Functional organization can be focused on objectives relevant to the entire population. As a result, the constituency of such an organization is less focused, except for the interest groups involved in providing that function, e.g., hospitals for the health function or oil companies for the energy function.

Target population organization is usually focused on the wide range of needs of the target group. Such an organization is, therefore, strongly identified with its particular population and usually is politically committed to carving out a larger piece of the public pie for that group.

Both of these organizing principles are often present in the same organizational unit. If so, specific programs usually overlap, and a certain amount of conflict over priorities is a likely result.

Access to Policymakers

Advocates of raising a particular organization within the hierarchy usually cite the need for access to policymakers and the ill effects of "layering." The presumption is that lower levels in the structure mean a lower priority for the program.

Reasonable Span of Control

This situation is the converse of the preceding. If each program obtains direct access to the policymaker through organizational shift, then the span of control of the top administrator can become impossibly broad. If any advantage is to be obtained in moving upward, advocates of a particular program must presume that other programs also attempting to move up will not be as successful. When wide responsibilities are forced on the administrator by political action, new informal devices to reduce direct access are usually employed, such as the filtering of proposals and contacts through a strong support staff.

Visible Symbol of Priority and Point of Access for External Constituencies

A readily identified Government unit responsible for particular types of programs may serve as a visible symbol of priority and provide constituencies with a rallying point. For example, when the Federal Government strengthened its family planning program, the emphasis was reflected in the creation of a separate organizational unit, and those individuals and groups supporting family planning had a clearly identified organization to support. The National Institute of Drug Abuse is another example of this organizational strategy.

Social Policy Purpose and Emphasis

A shift in social policy philosophy or emphasis is often reflected in the shifting of a program from one organization to another. For example, any program in the Agriculture Department will be more responsive to policy underlying the maintenance of agricultural markets, and a program in the OEO will identify with the needs of the poor as expressed directly by the poor rather than determined by professional experts. Organizations experienced in administering project grants tend to be more comfortable with innovation, whereas entitlement programs, such as income protection programs (welfare, social insurance, food stamps, etc.) concentrate heavily on equity rather than innovation.

Alignment with Congressional Committee Structures

The clear alignment of programs with specific Congressional committees has often led to the development of Congressional "patrons" for certain programs, and program advocates will oppose shifts in programs that might sever relationships. For example, Title V program advocates had the support of Congressman Wilbur Mills when he was the Chairman of the House Ways and Means Committee. Title V was the only health services grant program over which that committee had jurisdiction. Organizational or program changes that threatened that relationship were seen as detrimental to the support of the program.

Shaking Up the Bureaucracy

Usually couched in more elegant or discreet terms, a frequent justification for reorganization is the need to reduce the power of entrenched bureaucracies. Indeed, some influential people, including John Gardner of Common Cause, have advocated periodic organizational change as a necessary means toward organization self-renewal. Many techniques are available but the most common is "box shuffling" leading

to either centralization or decentralization of responsibility. Often an organizational change is justified in terms of other objectives combined with centralization or decentralization. Sometimes organizational decisions regarding locations of new programs are made to avoid placing them in a particular bureaucracy, as was the case with many of "New Deal" and OEO programs. Of course, such a strategy results in the creation of a new bureaucracy that will usually acquire, with the passage of time, the characteristics of an established bureaucracy.

Symbol of Rapid and Decisive Action

Even when there are few reasons for organizational change, a political leader may reorganize to give the impression of rapid and decisive action. Because the term of service for senior political appointees is often short (averaging just over 2 years in the Federal Government during the past 30 years), administrative reorganization is one action that can be taken in this time span. Needless to say, program objectives are cited as justification for such reorganizations.

ORGANIZATIONAL ISSUES IN MATERNAL AND CHILD HEALTH PROGRAMS

Following are some of the specific issues and their implications for Federal administration of maternal and child health programs. Because structure should derive from policy, it is necessary to clarify organizational issues in relationship to policy trends. Discussion of those policy options, per se, is beyond the scope of this paper.

Coordination of Medicaid and Medicaid-Related Programs with Programs of the Public Health Service

The Medicaid program was begun and continues as an offshoot of the welfare program. It was not conceived primarily as a health program but as an income maintenance program to help the eligible poor to pay for the high costs of medical care. This reasoning was reflected in the location of Medicaid until 1977 in the welfare administration unit of DHEW. Medicaid shares with welfare the responsibility for establishing and terminating eligibility, for rooting out fraud and abuse, and for administration through a set of reluctant partners, the States, many of which seek to minimize the number of eligibles and the scope of the program. The mechanisms of reimbursement have received much attention, and the effects of rapid rises in health care costs have focused attention on cost containment rather than health needs.

Two important developments have taken place recently. The first was the development of the Early Periodic Screening Diagnosis and Treatment (EPSDT) program, which attempted to use the Medicaid program in a

more aggressive fashion to identify children in need of health services and to meet those needs. That this program has had a difficult history should not be surprising given the basic characteristics of the Medicaid program. The CHAP proposal would carry Medicaid much further toward becoming a program for improving the health of its beneficiaries and not just an income scheme for paying expenses already incurred.

The second event was the transfer of Medicaid into a new agency in early 1977, the Health Care Financing Administration (HCFA). HCFA is attempting to provide a common administrative and policy framework for Medicaid and Medicare, a difficult task given the very different characteristics of the two programs. This intent is illustrated in the HCFA organization, which does not have a separate organization unit for Medicaid. It is reasonable to speculate that HCFA probably would administer any likely expansion of the Federal health financing role.

The current Administrator describes HCFA as a health program, yet its major components have an income protection orientation and administer payment processes based on the current nature of the health care system. These programs, by emphasizing payment for services already obtained and by following many of the patterns of private health insurance, have reinforced the characteristics of the existing health system with its emphasis on hospitalization, specialized services, and episodic care and disincentives for primary care, preventive services, and continuity of care. The addition of the (PSRO) and other "quality assessment" programs to review the appropriateness of and necessity for care cannot overcome many of the basic incentive patterns created by the systems of reimbursement.

EPSDT and CHAP seek to change those patterns for some aspects of child health services. However, many other programs, mostly in the Public Health Service, have been attempting to expand the capacity for primary care of poor populations in underserved areas. Other PHS programs have created and supported innovative patterns of care including health maintenance organizations (HMOs), midlevel practitioners, prevention and health promotion programs. Still other PHS programs support systems of information gathering and data generation, health planning, and resource development.

Since the creation of Medicaid, there has been difficulty in the coordination of its policy and operations with those of PHS. Examples of effective coordination can be cited in specific cases, but much evidence indicates separate paths and philosophies as well as the usual degree of territoriality.

The actual and potential relationships among the program elements of HCFA and PHS justify the need for a much closer relationship. Close cooperation will be required because of the prospect of CHAP and further developments in health financing programs that require inputs from health services oriented staff (e.g., the end-stage renal disease program), the growing need to improve and monitor the effectiveness of health services (through research, service innovations, assessments of efficacy, health planning, and health statistics), and the need to build local capacities for services (especially primary care for the poor and rural areas). The case for a closer relationship is especially strong in the area of

maternal and child health, because of (1) EPSDT and CHAP; (2) the strong emphasis in PHS on primary care including disease prevention and health promotion, which are especially large components of maternal and child health services; (3) the need to work with other programs and public delivery systems, such as schools and public health departments which do not have the fee-for-service reimbursement orientation of HCFA; and (4) the need to couple the professional knowledge, innovative capacities, and the commitment to improved health of the PHS with the leverage of the large dollar flow through Medicaid.

This closer linkage might be achieved by assigning EPSDT/CHAP to the PHS, by transferring all of the community health oriented activities of the PHS to HCFA, or by much stronger policy coordination that defines HCFA's role as the administration of the eligibility and payment mechanisms, and assigns policy determination largely to the office of the Assistant Secretary for Health. Whether or not any organizational shift is recommended, the magnitude of the coordination issue deserves specific attention by the Panel.

Separation of Research and Service Programs

Presently, the major research activities for maternal and child health are located within NIH, primarily in NICHD, while the maternal and child health-related service programs are predominantly in the Health Services Administration (HSA) of the PHS. The Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) is an example of the combination of service and research functions within the same agency. The mental health lobbies have worked hard to achieve and maintain this combination. However, there does not seem to be any pressure for an analogous move for maternal and child health, even though a case might be made for better linkage between service needs and research activities through such a merger.

Relationship of Maternal and Child Health Programs to Other Primary Care Programs

HSA administers various programs providing primary care (as well as other services) to underserved populations, mostly poor or rural. These programs include Title V (with its specific focus on maternal and child health and crippled children services), community health centers, migrant health, the National Health Service Corps, family planning, rural health programs, the Indian Health Service, and others.

When Title V was first transferred to the PHS in 1970, it retained its own organizational identity. However, the reorganization of 1973 that created the HSA changed the administrative structure of Title V to stimulate the integration of the Title V programs with the other comprehensive, family-oriented care programs of the HSA. The Office of Maternal and Child Health within HSA provides professional staff services, policy guidance, and technical assistance to all HSA family-

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oriented programs in addition to Title V. The intent is to use the full array of programs to improve family-oriented, comprehensive primary care for the underserved. The advocates of this approach contend that more care will be provided to more mothers and children through this coordinated approach and that the family orientation is advantageous in providing this care.

Those who argue for a separate maternal and child health program follow the child advocacy tradition of the Children's Bureau. They contend that a separate organizational identity is needed to ensure a priority concern for mothers and children, and that the reality of competition for limited resources means that the needs of children will be submerged unless a special emphasis and organizational identity are maintained. The Panel needs to decide if the advantages of close relationship with the family-centered programs of HSA outweigh the special emphasis on maternal and child health that would probably be stimulated by a separate organization. If Title V is modified to emphasize planning, monitoring, technical assistance, resource development, and coordination for maternal and child health services, as some have advocated, then a separate identity built around the current program of grants for services would probably not be sensible. The current structure is in line with the reality that many children receive their care in family-oriented settings.

Relationship to Welfare and Social Service Programs

Poor families often have multiple problems, many of which are related to health status of poor children. Because these programs are interwoven with the low incomes, income assistance programs have an impact on improvement and maintenance of health, and social services may ameliorate the effects of poverty.

The impact of social and economic factors has more significant variables for many child health problems than the availability of health services (especially those health problems cited by Haggerty as the "new morbidity"). Health services offered to these children and their families without attention to social and economic factors may have only temporary effects.

For these reasons, the income protection programs of DHHS, particularly the Aid to Families with Dependent Children (AFDC) and disability programs administered by the Social Security Administration, can be viewed as necessary underpinnings of the health-related programs although not specifically defined as health programs. The social services programs administered by the Office of Human Services have an even more direct effect on health. Some of these programs, particularly Head Start, have specific health components, and programs, such as day care, offer a potential as mechanisms for health services delivery.

Until 1970 the Children's Bureau combined health and welfare services with a research and advocacy function concerned with the needs of children. The breakup of the Bureau amplified the need to make an

explicit effort to coordinate policies and programs that are located in health, social services, and income protection organizations. The recombining of these child-related functions would probably ease the coordinating task at the cost of breaking useful linkages with relevant professional expertise and loss of leverage of many programs that support maternal and child health directly or indirectly. If the current organizational divisions persist, then it would be important for the health services to recognize the contributions income assistance and social service programs make to the health of children, to identify health needs that might be met by the other programs, and to enlist their support. Conversely, the policies and programs concerned with income and social services should attempt to facilitate access to health services and changes in the child's environment that have demonstrable impact on child health. The coordination of analytical, policy, and program operation activities probably needs explicit encouragement from the Office of the Secretary because all of the major units of DHHS are involved.

Enlisting Resources of Other Health Programs Within DHHS for Maternal and Child Health

Because many health programs within DHHS other than those specifically identified with maternal and child health have an actual or potential impact on maternal and child health improvement, a significant issue in assessing organizational and administrative options is the extent to which these non-maternal and child health programs can be directed or influenced to increase their attention to health problems of children. Many of these programs are very significant for maternal and child health:

- Research on child health problems is supported by Institutes other than NICHD, for example, research on dental caries, childhood leukemia, and childhood infectious disease.
- Many activities of the Alcohol, Drug Abuse and Mental Health Administration concern children, adolescents, or the effects of adult problems on children.
- Immunization programs, health education programs, and other prevention activities at the Center for Disease Control are heavily oriented toward children.
- The health planning program administered by the Health Resources Administration is a potential vehicle for strengthening the priorities and planning for maternal and child health at the State and local levels.
- Efforts of the Health Resources Administration to increase the number of primary care physicians, nurse practitioners, and physician assistants will probably increase access to maternal and child health services.
- The National Center for Health Statistics, Health Services

Research, and Health Care Technology are sources of data and research relating to maternal and child health needs that could (and to some extent do) serve some of the functions performed historically by the Children's Bureau.

- The end-stage renal diseases program in the Health Care Financing Administration services the needs of children that might otherwise be met (less completely perhaps) through the Crippled Children's Program under Title V.

Many more specific examples could be cited. The important point is that none of these programs is going to be placed in any new or rearranged structure specifically focused on maternal and child health or children, because they are embedded in larger programs with different objectives or functions. These programs can make important, often irreplaceable, contributions if greater emphasis and better coordination are the means of utilizing them to improve maternal and child health. If a policy commitment is made to increase the emphasis within programs not specifically related to maternal and child health to meet the needs of children, then various leverage techniques must be employed by an agent outside of the programs. This approach is not meant to imply that maternal and child health needs will not receive spontaneous attention from many of these programs, but in the competition for scarce resources maternal and child health needs may be slighted, especially given the demographic trends during the next 50 years.

The leverage techniques are many, including:

- Legislative mandate (e.g., requiring specific attention to maternal and child health needs through earmarked appropriations or legislative report language)
- Monitoring of the actual or potential effects of the program on maternal and child health by an outside maternal and child health unit, possibly within the current Planning and Evaluation structure
- Budget review concerned with maternal and child health impact using the monitoring system
- Persistent and opportunistic exploitation of these programs by maternal and child health activities at the State and local level, perhaps facilitated by effective Regional Office staff
- Formal interagency agreements with maternal and child health agencies
- Advocates outside the Federal Government applying pressure to decisionmakers (emphasis on particular diseases in the NIH is a good example of the effectiveness of this pressure)
- The creation or expansion of special units within the program specifically concerned with maternal and child health programming

Isolating maternal and child health concerns and locating them elsewhere is the opposite of leverage. This familiar path leads to later charges of overlap and duplication. If leverage is to be obtained, special, continuous and patient effort and understanding and tolerance for the many other objectives of nonrelated programs will be required.

Relationship to Relevant Programs Outside of DHHS

Coordination across department lines is one of the most difficult tasks in Federal administration, especially when different Congressional jurisdictions are involved. When the focus of the programs in other departments is children-specific and health-related, such as the WIC program in the Department of Agriculture, then the maternal and child health programs in DHHS can be perceived as natural allies and advocates, providing a basis for constructive cooperation. If the other department, however, perceives imperialistic ambitions, including the takeover of its program, then strong resistance and noncooperation can be expected. If policy conflict exists, confrontation is not likely to have much effect, because little real power can be exerted on the other department. Well-reasoned policy positions may have their effect through decisions by higher levels of the Government, such as the Office of Management and Budget (OMB), the Domestic Policy Staff, or the Office of Science and Technology Policy.

Common interests may lead to interdepartmental cooperation on a spontaneous basis, especially when one department wishes to draw on the technical expertise of the other. When competing expertise exists (and this is a frequent tendency), rivalry can inhibit coordination. For example, if the Department of Education decided to rely on the PHS for technical expertise in developing strengthened school health programs, a cooperative quid pro quo could be established. However, if the Department of Education decided to build its own health expertise, coordination with other health programs might languish for want of cooperation.

If maternal and child health interests in DHHS wanted increased emphasis on school-based health services under the Elementary and Secondary Educational Assistance Program of the DOE, this would be very difficult to achieve unless the DHHS offered funds, expertise, and/or advocacy that expanded Department of Education resources. Otherwise, DHHS would be trying to influence the reallocation of scarce resources within the DOE, a difficult task at best.

External advocacy groups, or institutionalized groups of external advisors, such as national advisory councils, can help establish the climate and pressure for cooperation. Here again it helps if additional resources can be offered to erode bureaucratic resistance.

Layering and Access to Policy Leaders

Layering is the imposition of organization layers between a particular program and leadership at the policy level. Layering is in the eyes of the beholder, because in a large department some programs have to be under other organizational layers to prevent the span of control from becoming impossibly large. It is cited as a problem when the advocate of the particular program believes that inadequate attention and priority is given to that program by higher levels of decisionmakers because the needs of the program are submerged beneath other priorities and the description of

these needs is filtered through administrative leaders who are committed to other priorities.

The Title V program is seen by some as layered within the Bureau of Community Health Services. This organizational location interposes three layers of decisionmaking between the Title V program and the Secretary of DHHS. Criticism of this organizational placement presumes that higher priority would be assigned to the program if it were to be moved up in the hierarchy thus gaining direct access to the Secretary.

This argument is simplistic in that many programs have received strong support even though located down several layers in the hierarchy. The National Cancer Institute (before the 1971 Act), the Army Corps of Engineers, and the National Health Service Corps are three very different examples of programs that maintain strong external support and sustain rapid expansion even though there are many layers, not always supportive, between the program and a cabinet officer. Layering can offer some protection for programs if the higher layers are reasonably supportive. Leadership instability may be associated with high levels within the Department especially if the leadership post is important to those attempting to change the political perspective of a Department.

Inadequate influence of layered programs on other programs is another problem. This concern can be valid if the program is never included in policy discussions of related programs because of its organizational location even though capable leaders have usually been able to express their views at higher levels and to influence other programs. The potential advantages of higher organizational location can be undermined by inadequate leadership.

High level policy commitment, however obtained, is the most important factor in obtaining funding, influencing program administration, or influencing related programs. A higher organizational location may be the result and symbol of that commitment. However, higher organizational location as a means of bringing about that commitment by high level policymakers is not always successful. Just as there are examples of strong programs at lower levels, there are also examples of weak programs and weak coordinating position at high levels in the Department.

Decentralization and the Role of the Regional Offices Within DHHS

The most crucial issue concerning decentralization of maternal and child health is the role of the States in such programs at the community level, but a full discussion of this issue is beyond the scope of this paper. The role of the States in many maternal and child health programs, such as Title V formula grant programs, WIC, and EPSDT has been and is significant. Other programs such as Community Health Centers and the original Maternity and Infant Care Centers have bypassed the States to a significant extent. The Panel must decide on the emphasis and roles to be given programs funneled through the States relative to those with direct Federal project grants. This issue is dealt with in various ways in other background papers.

The choice of policy direction has considerable significance for the organization of Federal staff. If the States are to play a primary role in programming flexible Federal funds, then the Federal staff would be small and would provide expert technical assistance to the States as needed, ensure compliance with Federal law and regulations, provide assistance to the States in drawing on and coordinating with other Federal programs, and perhaps monitor programs for measures of maternal and child health status and access to services. This approach would mean decentralization in the extreme and implies a relatively passive Federal role. Federal staff would be advocates for and provide assistance to what is predominantly a State function.

If a more active Federal role is desired, but with responsibility for the actual conduct of the programs residing with the States, then the Federal staff must be strengthened to play a more aggressive monitoring and enforcing role. If the States are to be held to certain performance standards, and if penalties and other pressures are to be applied when performance is inadequate, the Federal staff must devote much effort to documenting performance (establishment and maintenance of data and reporting systems), to encouraging or forcing corrective actions by the States (often through the time-consuming mechanism of threatening to bring Federal punitive actions), and to coping with the likely political controversy that such a course of action entails.

The first alternative implies that the States are the primary actors, with Federal assistance and help, whereas the second implies that the States are acting as agents of Federal policy. In these brief descriptions, the alternatives are caricatured to make the contrast. Some role-mixing of the Federal staff can occur, but the relationship must be quite distinct. The first assumes considerable tolerance for diversity among the States in objectives and performance, but the second assumes that greater national uniformity is desired. A good example of the first is the traditional Federal stance toward the content of education programs. The Federal stand on busing is a good example of the second.

If a system of direct Federal project grants (or Federal placement of personnel, as with the National Health Service Corps) is chosen as a third alternative, then the Federal staff becomes both programmer and judge. The success of such programs often depends on the initiative of Federal staff in identifying and assisting community leadership around which the local projects are built. When local initiative arises spontaneously, or in response to Federal stimulation, then the staff can help clear away problems, provide access to resources, provide technical assistance, and provide advice on the intricacies of Federal procedures. Federal staff must also sit in judgment on community programs regarding allocations of scarce funding, maintenance of satisfactory performance, and, as a last resort, termination of Federal funds. The relationship between community programs and the Federal staff is direct and the State has a small role. Indeed, part of the motivation for some Federal project grant programs for disadvantaged populations is the bypassing of existing public agencies that traditionally provided inadequate services to those populations.

The Federal staff is in a very difficult position in the direct grant role. They must be friend, expert, reformer, and judge. They are often in an

adversary position vis-a-vis States, as a deliberate policy, because the project grant program often assumes State inadequacies and with the resultant refusal to delegate Federal responsibilities to the States.

This discussion of alternative approaches to the decentralization of responsibility to the States provides a backdrop for discussion of the role of the Federal Regional Offices. Criticisms of the performance of Federal Regional Office staffs in relationship to maternal and child health programs often are not clear regarding the appropriate role. As stated, that role is very dependent on the Federal policy about the degree and nature of decentralization. If the responsibility for programs is strongly decentralized the appropriate role of Regional Office staff may be to provide or arrange for technical assistance on request, either regarding program substance or the intricacies of other Federal programs that the State may wish to investigate. The States may see the Federal regional staff as advocates to Washington. Regional staff in earlier years of close PHS-State Health Department collaboration were often perceived by headquarters as State oriented.

Several questions about the role for the Regional Office need to be addressed. Cannot the States be their own advocates? Can a Federal intermediary far from the Washington scene be useful? Do many States not have technical expertise within their boundaries at least equal to that which the typical Regional Office can muster? Would not consortia of States (on the Regional Commission or Western Interstate Commission on Higher Education (WICHE model)) be just as effective in marshalling expertise within their boundaries at least equal to that which the typical Regional Office can muster? If occasional Federal help is needed, can it not be provided by Washington headquarters staffs? In the business world decentralization is symbolized by the executive jet. In other words, if the policy calls for strong decentralization to the States, is not the Regional Office an anomaly, except perhaps in an interdepartmental coordinating role?

If the Federal Government is attempting to play an active role in moving the States toward the fulfillment of Federal policy objectives, then a strong Regional Office staff is probably required to provide both carrots and sticks to ensure State performance. The widely discussed failure of EPSDT is an example of a well-intentioned Federal initiative that foundered on the lack of a Federal strategy and capacity to ensure State compliance. The Regional Office role calls for strong knowledge of the substance of programs, skill in the technicalities of Federal leverage mechanisms, and intergovernmental diplomacy. Recruiting, motivating, and retaining such extraordinary persons in Regional Offices is a great challenge that is not often achieved.

A Federal strategy bypassing the States with direct project grant programs requires a somewhat different set of skills: substantive expertise, community organization skills, and some of the skills of a management consultant. The best of the OEO health staff and some of the young PHS staff implementing Community Health Centers in the late 1960's had these skills.

No matter how their functions are perceived, Regional Office staff play a coordinating and facilitating role among the various Federal programs

relevant to maternal and child health. In doing so they are often forced to cope with program inconsistencies, and inflexibility, poorly conceived objectives, and changing directives from headquarters. They are criticized from both sides, as they are called upon to correct the imperfections and ambiguities of Federal programs. Their role and rewards are clearest when they represent a single program.

The negative tone of these comments only means that the necessary conditions for a fully effective Regional Office function have not yet been defined or implemented. The multiplicity of Federal maternal and child health programs and the various modes of Federal action, all being implemented simultaneously, call for virtuoso performances by Regional Office staff. Such performance will only occur consistently after development of a long-term strategy for strengthening the staff.

Congressional Committee Structure

Congressional jurisdiction over programs affecting maternal and child health is split among many committees and subcommittees. According to a list compiled by the Congressional Research Service of all subcommittees with jurisdiction over health issues there are 26 subcommittees in the House and 23 in the Senate that have jurisdiction over matters that affect maternal and child health directly or indirectly. However, the major jurisdictions affecting maternal and child health are in three pairs of committees:

- Appropriations, House and Senate
- Senate Labor and Human Resources and House Interstate and Foreign Commerce
- Senate Finance and House Ways and Means

The committees cover most of the DHHS programs for maternal and child health, although major programs, such as WIC and Indian Health, are handled by other committees. Within these committees, many subcommittees further subdivide the jurisdiction over maternal and child health programs.

A complete discussion of the implications of this fragmentation of jurisdiction and its roots in the structure and history of the Congress is beyond the scope of this paper, but several of the most significant effects of this fragmentation deserve mention.

Coordination of Federal programs is made difficult because specific policies for each program are shaped by the particular views of the relevant Congressional committees and those views on similar issues may differ quite sharply. These differences and their impact on programs is intensified by the power exercised by strong committee chairmen or staff who often remain in positions of authority far longer than their counterparts in the Executive Branch. The policy differences between the Medicaid program and the project grant program for community health services are examples of the effects of split jurisdictions, especially in the Senate.

Another effect of this fragmentation is difficulty in introducing broad, multifaceted strategies for improving maternal and child health. Because

such strategies cut across jurisdictional lines, it becomes a herculean task for many private organizations (except for the very well-funded provider lobbies), to put together the multicommittee coalition necessary for coordinated action. A good example of this effect was the difficulty in developing a broad energy policy. Entrenched interest groups are almost sure to use a divide-and-conquer approach to defeat a broad strategy, and a weak link in the chain can usually be found.

Conversely, divided jurisdictions lend themselves to effective action by a sharply focused single issue constituency. However worthy the cause, the success of such a constituency in capturing the attention of a few powerful Congressional leaders can lead to further fragmentation of jurisdiction as a new subcommittee or special committees are formed around specific issues.

Finally, multiple committee jurisdictions erode the time and energy of already overburdened leaders of Executive Branch agencies. Agency heads and their staffs typically spend extraordinary amounts of time dealing with Congressional committees, and multiple jurisdictions compound this problem. Much of this activity is a necessary part of accountability under our democratic system, but the separation of powers under the U.S. Constitutional system does place unusual, and at times destructive, burdens on Federal executives, in contrast with the parliamentary system of Britain or Canada.

This set of problems is true of many areas of public policy, not just those related to maternal and child health. Given the nature of Congress, good solutions are difficult to identify that do not either raise other significant problems or fly in the face of the realities of political power.

ORGANIZATIONAL OPTIONS

Various organizational options are outlined and discussed, and emphasis is given to those more likely to receive serious consideration if advocated by the Panel. The options are deliberately described in rather general terms, both because the number of detailed variations nears infinity and because it is more appropriate for external advisors, such as the Panel, to advocate the broad outlines of desired changes, leaving the details to be worked out by responsible administrative officials. However, some specific details are mentioned when they illustrate a necessary point. Some variations within an option are specified when different approaches to the same organizational objective deserve special attention.

The intent is to provoke thought and to illustrate some of the trade-offs, not to provide an organizational answer for the Panel. It is hoped that in choosing among these options, or recommending different combinations or variations, the Panel will understand better the significance and likely impact of their recommendations.

A brief discussion of options for Congressional organization is included, but a full treatment of the Congressional situation is beyond the scope of this paper.

These options are described:

(1) The status quo

(2) A coordinating mechanism with variations
- An Office of Maternal and Child Health in the Office of the Secretary of DHHS
- Deputy Assistant Secretary for Maternal and Child Health in the Public Health Service
- A National Advisory Council for Maternal and Child Health

(3) A new Maternal and Child Health Organization within the Public Health Service consolidating existing programs (and including any new programs recommended by the Panel) with variations:
- Maternal and Child Health Administration reporting to the Assistant Secretary of Health
- Bureau of Maternal and Child Health within the Health Services Administration
- Consolidating PHS programs only
- Transferring EPSDT (or CHAP) from the Health Care Financing Administration

(4) A new children's agency within DHHS (a reconstituted Children's Bureau)

(5) Merger of Public Health Service and Health Care Financing Administration

(6) Congressional jurisdiction options
- Consolidating maternal and child health jurisdictions within an existing committee in each House
- Establishing subcommittees on maternal and child health within existing committees
- Joint jurisdiction
- A new Select Committee on maternal and child health with or without legislative jurisdiction
- A new joint committee

Option 1—Status Quo

This option is important for several reasons. The frequency of reorganizations recently (four major reorganizations of the PHS since 1962, plus the transfer of Title V in 1970 to PHS, and the creation of HCFA in 1977), the still fresh assimilation of new programs and the possibility of major new policy initiatives, such as national health insurance, have created an atmosphere of instability. As stated previously, shaking up an entrenched bureaucracy may be a valid justification for reorganization, but the PHS has hardly had the opportunity to grow too comfortable in a long-established organizational mold.

Every time a change takes place, a price is paid in turmoil. Able people are usually lost through resignation or retirement because of uncertainty, frustration, or perceptions of hostility almost inherent in major organizational shifts. Change is particularly destructive if it is perceived as the whim of a particular administrator, without clear policy objectives, and without a firm political commitment. Because the senior officials initiating such changes are usually political appointees whose tenure is usually from

2 to 3 years, it is easy for career staff to adopt a cynical attitude about organizational changes. Rapid change breeds defensive behavior.

The amount of energy invested in any major organizational shift might be invested instead in staff development (a long-range activity requiring some organizational stability), policy refinement, and administrative streamlining and improvement. This option is particularly attractive if major policy initiatives and increments of funds are unlikely.

However, if major policy and program changes are in prospect, then the organizational status quo has the disadvantage of leaving in place the organizational manifestation of earlier policy commitments.

This option also fails to provide explicit means for improved program coordination. It depends on the inclinations of the line leadership. The current status quo can be characterized as providing little specific organizational identity for maternal and child health programs, yet at present the PHS leadership is concerned about these health problems because pediatricians occupy many key positions. This orientation may shift with the Presidential election or with the typical turnover rate in senior positions.

Nevertheless, an option to preserve the status quo should be the reference standard against which all others are judged. The benefits of any proposed change must exceed the considerable benefits of a period of organizational calm which provides opportunities for program leaders to improve current arrangements and policies.

Option 2—Coordinating Mechanism

Programs with direct and indirect relevance to maternal and child health are scattered in many locations within the PHS, HCFA, other parts of DHHS, as well as the Departments of Agriculture, Education, and even Defense. This fragmentation has its source in the diverse roots of social policy and is sustained through interest group pressures, bureaucratic defense of territory, and divided Congressional jurisdictions. Rather than confronting these forces head on by proposing major organizational consolidations with maternal and child health as the overriding priority, a coordinating mechanism could seek synergy among programs and reduction of policy and administrative conflicts.

The coordinating approach has many potential virtues:

- It provides a clear focal point for analysis, monitoring and advocacy of maternal and child health interests across a wide range of programs, including those general health programs with secondary impact on maternal and child health.
- It gives external constituencies and Congressional interests an easily identifiable point of contact and serves as an information dissemination point about Federal maternal and child health activities.
- It is less disruptive than major reorganization.
- It is less subject to the policy and administrative biases of particular line agencies that value objectives other than maternal and child health.

- By avoiding the burdens of day-to-day management of program, it retains flexibility in relationship to the multiple and complex processes of decisionmaking within the Executive and Legislative Branches. Among the liabilities:

Among the liabilities:

- It can lead to rivalry with line managers and (often) the absence of decisionmaking power, depending on responsibilities assigned to the coordinator.
- The coordination function is usually more effective in coordinating major policy than in coordinating program administration.
- It often lacks long-term continuity, therefore can be defeated by bureaucratic delay tactics.
- The coordinating function tends to slip into administrative meddling and trouble-shooting.
- Multiplication of coordinating mechanisms for many different interests can lead to a new layer of administrative confusion (special assistants stumbling over each other attempting to attract the attention of the line decisionmaker).
- Coordination mechanisms have a potential for diffusing responsibility and accountability.
- The staff can become captive to information supplied by line managers.

In designing such a coordinating mechanism, important decisions must be made about location, structure, and responsibilities. Higher organizational location gives wider scope across programs and/or departments, but is less institutionalized and more subject to political shifts. For example, the coordinating mechanism could be in the White House Domestic Policy staff, at the Secretary (DHHS) level, or in the PHS. The higher levels are likely to be less tolerant of a special-focus coordinator because of the breadth of their concerns, but precedent exists in the drug abuse policy focus at the White House.

Because the majority of maternal and child health activities are within DHHS, a White House location does not seem likely, but there are two principal alternatives within DHHS. The first is the establishment of an Office of Maternal and Child Health within the Office of the Secretary. This location is pertinent to the coordination of programs in PHS, HCFA, and Administration of Children, Youth and Families. In this location the Office could invoke the Secretary's authority to overcome resistance to coordination by the line agencies and could be the support staff for the National Advisory Council on Maternal and Child Health.

The other alternative is to locate the coordinating mechanism within the Office of the Assistant Secretary for Health. Several external groups interested in maternal and child health have advocated a Deputy Assistant Secretary for Maternal and Child Health to carry out this function, but the function could also be labeled as an Office of Maternal and Child Health. This location would probably provide a greater degree of institutionalization and continuity, and a more professional tone than a location in the Office of the Secretary. Coordination of programs outside the PHS would probably be more difficult. This location would be more strongly justified if EPSDT/CHAP were moved to the PHS, or PHS and

HCFA were combined (see discussions under options 3 and 4). Effective advocacy of maternal and child *health* might be sustained more easily in a health environment.

The specific responsibilities assigned to the coordinating mechanism are very important considerations. The tools that will be available for exerting influence on operating programs cannot be left to happenstance. If the Panel is to recommend such a mechanism it must recommend how the function is to be performed regardless of what organizational level is recommended. Simply allowing the skills and whims of the individual given this responsibility to determine the nature of the function would provide little staying power for the mechanism and might encourage the kind of ad hoc meddling that often characterizes the special assistant role. The tools might be limited to the classic staff functions of information gathering, analysis, and advice to the line decisionmaker. The information gathering and dissemination role could be strengthened by assigning (and staffing) a formal clearinghouse function. By creating and controlling unique information sources about maternal and child health activities in the Federal Government (and perhaps including nonfederal maternal and child health programs), the influence of the coordinating mechanism might be increased by having this unique source to offer programs, Congressional staffs, and external constituencies. An example of a useful analytic and information function might be the assignment of responsibilities, perhaps by statute, for developing an annual report on the maternal and child health Federal budget. This report could be analogous to the Special Analyses contained in the President's Budget. The report could also describe major policy developments and program accomplishments or highlight specific issues in maternal and child health. This report could provide a focus of attention for maternal and child health programs throughout the Federal structure.

If the coordinator is to have the responsibility for program and policy analysis, a strong analytical staff will be required. This requirement puts the coordinating mechanism in competition with other staff units reporting to the same line officer. Some competition can be healthy and provide decisionmakers a rich array of policy options and analyses from which to choose. However, much energy can be dissipated in struggles among competing staffs, especially if the delegation of responsibilities to the coordinating office is not clear.

To further strengthen the powers of the coordinator, the office can be assigned specific review, comment, or even signoff responsibilities for budget, legislative proposals, important administrative policies and regulations, and planning that would directly affect maternal and child health programs. It is possible, but unusual, for the coordinator to be assigned such responsibilities for programs outside their organization if such an arrangement were approved and enforced by higher authority. For example, a coordinating office located in the PHS could be given specific review, comment, or signoff responsibilities concerning HCFA programs and policies affecting maternal and child health. Irreconcilable differences would be referred to the Secretary for resolution. This situation occurs sometimes under current arrangements, but an explicit assignment of such responsibility by the Secretary would add credibility and legitimacy to the

coordinator's actions. Line administrators usually resist such assignments as undesirable diffusions of responsibility.

Another coordinating device that has been used in other areas is the establishment of a National Council for Maternal and Child Health. The Council might have full-time members and function like the Council of Economic Advisors, but a more plausible arrangement would be an advisory council composed of nonfederal experts and leading citizens with an interest in maternal and child health serving as part-time consultants as with the national advisory councils at NIH. The chairman could be either a nonfederal person appointed by the Secretary (or the President) or the full-time head of the coordinating office. Examples of both approaches can be found in other advisory councils. Public Administration purists oppose a nonfederal chairman, but a prestigious person in that role might give additional visibility to the Council and an appearance, and perhaps a degree, of greater independence. The President's Science Advisory Committee during 1958-1970 was chaired by the President's Science Advisor and had a distinguished membership and important impact during its earlier years.

Defenders of line responsibility within the agencies and the Office of Management and Budget are likely to oppose a strong advisory council. However, such a mechanism could provide visibility to analyses and recommendations concerning important maternal and child health issues. The character of the Council as analyst or advocate would depend on the individuals in the Council. Analysis and advocacy are not necessarily in conflict, and the most effective advocacy, especially within the Executive Branch, is based on sound analysis. Such a group might be discounted in the decision process for having a predictable "point of view" rather than providing creative solutions or options for difficult problems.

If the Council is to be effective, it needs not only strong staff support but also some specific responsibilities. The special report described above might be issued by the Council. It might be asked to review and comment on budgets, legislation, and major policy proposals. The Council comments, generated independently, could be given to the Secretary or other line official. Statutory budget review, as with the cancer advisory apparatus, might be considered, but this approach will be strongly opposed by OMB and line managers. Useful functions of the Council could be to focus attention on new policy and programs and to provide some oversight for the implementation of the new directions.

All of these devices that strengthen the Council will create some tension with line managers. Tension is an inevitable result of a Council that has effect on the coordination and priorities of those programs that have maternal and child health as a secondary interest as well as programs directly concerned with maternal and child health.

The Council could be associated with the coordinating office whether located in the Secretary's office or that of the Assistant Secretary for Health.

Two final comments can be made on coordinating mechanism. First, the effectiveness of coordinating devices tends to diminish as they become routine. Special effort must be made for periodic renewal of commitment.

Congressional hearings on the annual report might help. Second, coordinating functions require a particular style to be effective, so the choice of the office director is very important. There is a fine line between being forceful enough to have an impact on decisions and being meddlesome and ineffective in both line and staff functions.

Option 3—New Maternal and Child Health Operating Program

A third option is the creation of a new agency within the PHS combining all or some of the following:

- Title V programs
- Family planning
- Adolescent health
- Health education prevention programs for children
- School health
- NICHD

This agency could also be given some or all of the coordinating functions described (under option 2) although coordination by one line agency of the activities of another line agency is usually of limited effectiveness. The creation of a new agency might be accompanied by the creation of a new coordinating mechanism at a higher level in the structure. In this arrangement, the new agency would be one of the units to be coordinated.

There are two basic versions of this option:

(1) A new bureau within HSA focused on service programs, leaving NICHD in NIH;

(2) A new agency within the PHS including NICHD and analogous to ADAMHA combining service and research responsibilities.

The argument for the second version is that the research and service programs would have a synergistic effect if they were located within the same organization. The research programs of NICHD might broaden their focus if more direct contact with the service programs is achieved and if NICHD were not a part of the biomedical milieu of NIH. The service programs might benefit from contact with a strong research environment that would provide a framework and address research needs generated by those service programs.

On the negative side, the quality of research might be eroded by the move to the new agency. It has been difficult for other parts of the PHS to emulate the research climate and prestige of NIH. Relevant research in maternal and child health may benefit from the power of the biomedical lobby in defending the funding and the climate for research if NICHD is still within NIH. Because research relevant to maternal and child health is also carried out and supported by many other units of NIH and ADAMHA the relocation of NICHD might actually lessen the total level of research directed at the health problems of mothers and children. There seems to be very little support for the removal of NICHD from NIH.

A new bureau focused on maternal and child health services has the obvious advantages of increased visibility, new opportunities for program

coordination and integration, and the possibilities of creating an attractive administrative climate for professionals.

The disadvantages, in addition to the inherent disruption of current arrangements, are the splitting off of those programs with an exclusive maternal and child health focus from those with a focus on the family and that include very substantial services for mothers and children. This issue is, of course, an important policy decision for the Panel. A tendency might also be to focus the new bureau almost exclusively on Title V and relationships with the States, resulting in a weakening of relationships with other primary care programs that are not directly related to State responsibilities. This situation is also a policy issue rather than administrative issue.

The case for a separate bureau might be strengthened if other organizational options are included. The most significant would be the move of EPSDT or CHAP from HCFA to the PHS. This major organizational option would significantly alter the responsibilities and character of the new agency.

Another alternative, a separate bureau for EPSDT/CHAP, could be established within HSA with coordination achieved at the HSA level between this bureau and the maternal and child health bureau. A third alternative would be a separate agency within the PHS for EPSDT/CHAP independent of any organizational changes in maternal and child health programs. These arrangements would not seem to capitalize, however, on the possible advantages of such a significant transfer to achieving better coordination among maternal and child health programs. This transfer will be opposed because it would fragment the health financing programs that HCFA has been attempting to integrate. However, CHAP differs from Medicaid in its intent to reach out to eligibles to ensure services for them. Title V and the other HSA programs could be viewed as instruments for helping to achieve the objectives of CHAP. CHAP could be seen as more compatible with the health services orientation of the PHS and HSA rather than with the health financing environment of HCFA, with its necessary focus on reimbursement methods, cost containment, and reduction of fraud and abuse. The importance of HCFA-PHS coordination previously was described. The transfer of EPSDT-CHAP would simply alter the pattern and content of coordination. The PHS would have to work closely with HCFA in establishing EPSDT/CHAP policies, and working out arrangements with HCFA for dealing with the State Medicaid agencies on matters of eligibility, payment, and State matching funds.

More programs might be added to a new maternal and child health agency, including immunization programs of CDC and some ADAMHA services relating to children. The judgment to be made in these cases is whether the increased maternal and child health focus outweighs the separation from professional and technical environments that are also highly relevant to these activities. For example, it is unlikely that the new bureau could acquire the expertise in immunization programs possessed by CDC.

Option 4—A New Children's Agency Within DHHS

This new agency could include all of the programs discussed under option C, but also include Head Start and social service programs for children. In essence, this option would be a recreation of the Children's Bureau. The establishment of such an agency would make it feasible to consider the transfer of maternal and child health-related USDA nutrition programs, for such an agency would probably be of sufficient size and stature to administer very large programs.

The major virtue of this option is the inclusion of maternal and child health in a broader social services context that would acknowledge the importance of social and economic factors. The option also provides the clearest focus for child advocacy within the Federal structure.

This option is the purest form of the "target population" strategy (in contrast to a functional strategy). As such, it would represent a commitment to children, not just to maternal and child health. The inclusion of health programs (including CHAP) might give a strong and popular thrust to a new children's strategy, and be more saleable politically than the social welfare orientation of the current Administration for Children, Youth, and Families.

The major liability of this option is the separation of maternal and child health from other health-related activities, many of which have very substantial and direct impact on maternal and child health. The functional rather than the target population relationship also gives more immediate access to relevant expertise concerning the delivery and organization of services.

Option 5—Merge PHS and HCFA

This option is not like the previous four options, but such a merger might provide a much better opportunity to coordinate services and financing. Most of the other options could then be implemented within this option, but it would probably be easier to coordinate Title V and CHAP, for example.

Option 6—Reorganization of Congressional Jurisdictions

Some of the current fragmentation of Congressional jurisdiction over maternal and child health programs, such as the separating of legislative and appropriation jurisdictions, are basic elements of the Congressional process and as such cannot be changed. Steps could be taken, however, to reorganize legislative and oversight jurisdictions to provide a clearer focus.

The five basic options for change are as follows:

(1) Transfer of jurisdiction into an existing committee

(2) Establishment of a new subcommittee
(3) Joint jurisdiction
(4) Establishment of a new select committee on maternal and child health
(5) Establishment of a joint committee

Any of these changes involve many political considerations such as the relative power of existing committee chairman and will not be discussed except to indicate that these factors may dominate any real solutions.

Before considering specific options, the Panel will have to decide if it wants the focus of the changes to be only maternal and child health or broader children's programs. The latter is a broader constituency, and the problems of traditional domains and existing jurisdictions would be intensified. The shape of the committee jurisdiction changes would be quite different. This discussion is arbitrarily limited to maternal and child health options.

The first option, transfer of jurisdiction into an existing committee, is the most direct approach, but it is also very difficult to achieve because one committee loses what another gains. In the House, the committee likely to accept the additional jurisdictions would be the Subcommittee on Health and Environment of the Interstate and Foreign Commerce Committee. The primary jurisdiction considered for transfer would be over EPSDT/CHAP (now under joint jurisdiction of the Ways and Means Committee and the Interstate and Foreign Commerce Committee) and perhaps the WIC program from the Agriculture Committee. For example, the Ways and Means and the Agriculture Committees are very powerful and would not give up jurisdiction easily.

In the Senate the transfer of jurisdiction over these programs to the Subcommittee on Health and Scientific Research of the Labor and Human Resources Committee would have more significance because there is no present joint jurisdiction with the Finance Committee over Medicaid as in the House. Jurisdiction over the family planning program might be transferred from the existing Subcommittee on Child and Human Development. This transfer illustrates the dilemma of functional versus target group jurisdictions.

Another option is the establishment of a new subcommittee for maternal and child health within each House so that there would be a distinct focus for maternal and child health legislation. However, such subcommittees would further splinter jurisdiction over health programs and might make coordination of legislative policy more difficult. An additional program in the Senate would have a corresponding relationship to the existing Subcommittee on Child and Human Development.

A third option is joint jurisdiction over maternal and child health legislation, especially EPSDT/CHAP, and perhaps the WIC program along with the program of education for the handicapped. This model is already used for joint jurisdiction over Medicaid and national health insurance proposals by the Interstate and Foreign Commerce and Ways and Means Committees. This approach avoids the loss of jurisdiction by either committee. However, the legislative process, already complicated, is

made so complex that action on controversial issues might be almost impossible.

A fourth option is establishment of a select committee on maternal and child health in each House. The Select Committee on Nutrition is an example of this approach. Select committees often have limited life spans, and are intended to provide a surge of Congressional attention to a topic that is not receiving sufficient attention through the regular committee structure. A select committee can be given actual legislative jurisdiction (the power to consider and recommend legislation to the Congress) or the jurisdiction can be limited to oversight (the power to investigate, hold hearings, and issue reports). The former requires the transfer of some jurisdiction from existing committees to the select committee and will be more firmly resisted than the oversight function. The select committee on maternal and child health could hold hearings on the annual special report. An investigatory and oversight function can attract a great deal of publicity to a particular topic and can bring pressure to bear on the committees with legislative jurisdiction, but the real power resides with legislative jurisdiction.

The fifth option is the establishment of a joint committee on maternal and child health. Again this committee could be given legislative jurisdiction (an example is the now defunct Joint Atomic Energy Committee) or oversight jurisdiction (an existing example is the Joint Economic Committee). The comments regarding select committees apply to this option as well. The joint committee is a very unusual device and its main virtue would be the unique attention that would be focused on maternal and child health issues. This option is unlikely.

IMPLEMENTATION OF ORGANIZATIONAL CHANGES

Too little attention is usually given to implementation of proposed organizational changes, yet the achievement of the desired objectives often depends heavily on factors relating to implementation. The following are some of the factors that must be considered along with any changes in the organizational structure. It is hoped that in its recommendations the Panel will give some explicit attention to these factors.

Explicit Strategy for Implementation

No reorganization should be undertaken without the development in advance of an explicit and detailed strategy and plan for its implementation. The chaos and tension inherent in any change is great and would only be exacerbated by a lack of planning at the outset. A well-developed strategy and plan must take into consideration and address political factors as well as administrative details. Some interest group usually opposes any change, and efforts must be made to mollify such antagonis-

tic forces. Internally, a good plan will help prevent morale problems by providing a sense of purpose and direction to replace the comfort of old ways.

Sufficient Time for Implementation

Full implementation of a change requires time, usually several years, before all of the problems are overcome, positions filled, and new procedures and relationships developed. Too little time is often allowed for the settling of the new order. Major reorganizations should not be too frequent or a general instability and poor morale can be created when one change is forced on the heels of another. The PHS, the Office of Education, Medicaid, and the child services programs have all suffered from the effects of inadequate assimilation of previous reorganizations. A good plan can provide for strong advances while still allowing adequate time for implementation.

The Civil Service and Organizational Change

As stated previously, people are usually more important than organizational structure in meeting program objectives. Organizational changes are sometimes used as mechanisms to replace people in key positions when their performance is considered inadequate. Although this method may be justified in the long run, Federal Government agencies must retain most of their employees because of Civil Service tenure regulations.

Even if tenure were not a problem, the complex tasks facing maternal and child health programs demand managerial and professional competence of a high order, and much of this competence is not developed through the usual professional training or prior experience. What is needed is a commitment to career development, with attention to the development over time of knowledge, skills, and experience. Not only does the Civil Service have a weak tradition of career development, but frequent organizational changes provide strong disincentives for individuals to pursue long-range career goals. The erosion of the Civil Service during the last 15 years can only be overcome by the same deliberate attention to the development of competent staff that exists in the military or in large corporations.

Much of the training and structured experience must be specifically designed to develop competence in the management of maternal and child health programs at the Federal level. This competence includes training and experience with management of indirect programs (such as grants), attention to Federal-State-local relationships, substantive knowledge about the organization and evaluation of services at the community level, and some knowledge of program analysis techniques. Planned advancement could provide the range of experience that is a necessary complement to academic knowledge.

The Civil Service has traditionally emphasized the job and not the person. If competence is to be developed over time, it must be person-specific. Perhaps the new Senior Executive Service is a step in the right direction. The Panel should note the importance of staff development for the successful implementation of any of its recommendations regarding the Federal role.

Leadership Turnover

The importance of competent career staff is intensified by the rapid turnover of leadership at the political appointment level. Because this phenomenon is unlikely to change, a strong career staff is needed at senior levels to provide continuity and expertise. Because of leadership turnover, any major organizational change should not depend on a political appointee for its viability. The responsibility of career staff and of such groups as the Panel is to focus attention on long-range accomplishments. The time span of leadership for a specific appointee is almost always too short for effective implementation of major new programs. Therefore, if the Panel is recommending major new programs, specific attention should be given to a strategy for survival and development after the ideas have been sold to the current decisionmakers. This approach means attention to internal and external constituencies who can be committed to the new objectives.

Strengthening Regional Offices

As noted previously, Regional Offices have special problems and needs in the area of staff development. In addition to clarifying the role of the Regional Office, specific steps should be taken to strengthen the staff for the very complex tasks that face them. These steps might include the following:

- Career paths for filling headquarters positions that include mandatory assignments to the Regional Offices patterned after career development in most major businesses
- Special training programs built around the particular challenges faced by Regional Office staff due to the unique Regional Office role
- Seminar series that put Regional Office staff in contact with the innovators in related activities so that Regional Office staff are at least as exposed to new ideas as the central staff
- Maximum use of modern electronic communication systems (including private satellite transmission circuits) to ensure full and rapid communication by the written and spoken word between Regional Offices and headquarters and among Regional Offices
- A grade structure that recognizes the importance of this role, and bonuses and incentive awards for good performance specifically targeted to the Regional Office staff

- Advisory and technical assistance to Regional Offices relevant to their particular and vital role (most of the current Federal advisory structure focuses nationally recognized experts on national aggregate policy concerns, yet these experts live in the regions and could be used to advise the Regional Offices)

FACTORS TO BE CONSIDERED IN CHOOSING ORGANIZATIONAL OPTIONS

Major organizational change should only be recommended if major policy change is recommended and the link between them is clear.

Examples of these linkages are as follows:

- Option 1 (status quo) would be logical if the recommendations are focused on the internal policies and funding of existing programs.
- Option 2 (new coordinating mechanisms) presumes that existing coordination of and priority assigned to maternal and child health programs is inadequate and that internal improvements of each maternal and child health-related program will not in the aggregate lead to the desired program impact without new mechanisms of coordination and advocacy. The stronger versions of this option presume that exhortation and information will not provide enough leverage and that some friction with line managers is a worthwhile price to pay. Extension of the coordinating mechanism to the health financing program presumes that greater health services emphasis is needed in administration of these programs.
- Option 3 (new maternal and child health agency) presumes that separate programs for maternal and child health are preferable to family-centered programs as a means of providing services to those in need. This option might also be the choice if a decision is made to funnel Federal support primarily through State maternal and child health programs rather than relying on direct project grants to communities or assignment of National Health Service Corps personnel (the primary mechanisms of HSA in its current form). This option also presumes that the benefits of greater identity and priority for programs primarily aimed at maternal and child health outweigh the probable decline in leverage on other health programs that have major real or potential impact even if not the primary focus.
- Option 4 (new children's agency) would be the choice if a major new child-centered strategy were being promulgated that recreated the Children's Bureau with its multiple mechanisms to have a broad impact on child development and welfare. maternal and child health would be only a part (although perhaps an important part) of the grander strategy. The policy thrust would emphasize the whole child and the synergism of other services with health services at the risk of losing impact on other health services programs.

- Option 5 (merger of PHS and HCFA) is a contextual option that would support a strategy committed to providing required services and organizing the services to meet child needs.
- Changes in Congressional jurisdiction would reflect a commitment to special identity for maternal and child health concerns at a cost of some probable friction with existing Congressional health leaders and the further splintering of health-related jurisdictions.

If a major new strategy for maternal and child health is proposed, organizational changes can help to symbolize and implement the strategy, but reorganization without policy shifts is unlikely to provide benefits.

This is a corollary of the first principle. The Panel should be prepared to recommend that reorganizations not be implemented unless the policy changes or emphases that underlie the organizational changes have been approved. The Panel should resist organization changes as cosmetic substitutes for policy changes that have been rejected (a not unusual occurrence). The creation of the Department of Energy is an example of this principle, both in the positive and negative sense. The creation of DOE represented the great importance of energy policy, but the DOE difficulties stem from creating the organization before the major policy issues were decided.

An implementation strategy should always accompany a reorganization proposal.

This principle follows from the discussion concerning the implementation of organizational changes, especially the concerns for the development of competent staff. Unless the Panel has thought through, and recommended, some of the necessary conditions for successful implementation, a reorganization proposal would be incomplete. Wishful thinking about the impact of organization changes should be avoided. Changes may be destructive in an organizational environment already traumatized by (subjected to) frequent change.

Expectations for the impact of coordinating mechanisms should be modest; they work best when clearly linked to and identified with a new policy commitment and when some specific tools of coordination are provided.

This is another version of the major theme but it deserves emphasis. Everyone is for better coordination as an abstract principle, but many coordinating mechanisms are of marginal or negative usefulness. Often they are a substitute for confronting problems with line management. If line management is the problem, direct changes in personnel or policies and more clearly focused responsibility for desired program changes are more effective. However, when the coordinating mechanism is linked to policy shifts then coordination can have real value. Good examples of these are the Council of Economic Advisors and the Full Employment Act of 1946, the President's Science Advisory Committee, and the Sputnik-induced attention to science and technology in the late 1950's and early 1960's.

In making organizational recommendations, the trade-offs among desirable, but incompatible, objectives should be made explicit.

No major organizational change is without its costs. The most effective arguments for change anticipate and address these trade-offs and justify

the recommendation on balance. If the costs are not recognized, the recommendations could be rejected and unrealistic, and the results disappointing. These questions are difficult and seldom clearcut. Family-oriented care, the close relationship of CHAP policies with other HCFA policies, the focus of responsibility on line managers, and the reasonable stability of organizations are clearly valuable goals. Yet most of the options would compromise one or another of these values. These costs must be justified in terms of the value to a clear societal investment in the health of mothers and children and it is hoped this paper provides some of the basis for effective arguments about desired trade-offs.

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SECTION VI

HEALTH MANPOWER

CHILD HEALTH PROFESSIONALS: SUPPLY, TRAINING, AND PRACTICE

by

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EXECUTIVE SUMMARY

The field of child health care is now experiencing the result of a time and quantity lag between "baby booms" and a "pediatric health professions boom." Present projections show the supply of pediatricians alone is increasing at a rate that is greatly disproportionate to the rate of increase in the number of children in the United States. Between 1975 and 1990, the number of pediatricians will increase from about 26,000 to over 40,000, while the number of children will remain relatively constant. Moreover, the simultaneous increase in the supply of family physicians, nurse practitioners, and other professionals means that the total number of child health care providers is likely to exceed even the most generous standards. The prospect of a physician oversupply could be the most significant factor that will determine the degree of use of nurse practitioners, physician's assistants, and other allied health workers in the future.

Although ideal provider-to-child ratios are not well established, any dramatic changes in the relationship between the number of child health practitioners and the number of children will have serious implications for the character, scope, and costs of medical services as well as for manpower supply, training, and practice. This disproportionate growth could have markedly different implications, depending on child health needs. If a large number of unmet needs are currently unmet, the new pediatric health workers might bring need and supply into balance. If, on the other hand, the present provider-child ratios are adequate, then the projected increase would constitute a serious oversupply. Also, if the pediatric health workers are not well suited or trained to handle presently unmet

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child health needs, then the increased physician supply could be inappropriate even if the total number was not excessive.

In recent years a number of researchers and governmental agencies, as well as the American Academy of Pediatrics, have attempted to determine how many practitioners are needed to provide necessary child health care. These efforts have resulted in many different estimates, some more reasonable than others, but all generally suggesting that an oversupply of child health practitioners is likely in the future. Missing in almost all of the manpower estimates to date is a thorough analysis of child health needs that would provide an adequate basis for making decisions about the number and appropriate training of child health care practitioners in the future.

Because the child population is expected to increase relatively little over the next 70 years, the challenges for child health are largely to produce the right mix of practitioners, services, and resources necessary to meet present and future child health needs. Generally, medical care is widely available to children. In addition, as noted above, the supply of practitioners is expanding rapidly and should be in abundance in the future. Nevertheless, substantial numbers of children today have no regular source of care or no regular physician. Pockets of unserved populations exist, particularly children in rural and central city areas, the poor, blacks and adolescents.

In addition, numerous health care needs are not being met by the present system. The most well-documented areas of unmet needs include adolescent medical care, certain disorders related to sexuality, family planning, alcohol and drug abuse, mental illness, and chronic disabilities.

Solutions to the problems of unserved populations involve both the supply of practitioners and the financial and other incentives that determine practice location and character. On the other hand, solutions to the problem of unmet needs are related to the education of health professionals. The strategies for meeting child health needs must address both types of problems.

Education for child health professionals could be modified in several ways. In keeping with the report of the Task Force on Pediatric Education, all child health professionals should be broadly trained in both the routine organic illnesses and problems and the psychological and social aspects of health. Pediatricians, in addition to their more extensive training in the management of complex disorders, should also have a firm foundation in routine problems of infancy and childhood, in all aspects of child growth and development, and in the genetic, family, environmental, and social influences on the health of children. Pediatricians should, of course, continue to provide the array of subspecialty services that will be needed by children. The numbers of pediatricians should be more than adequate in the coming years so that general pediatric education can be expanded without threatening the supply of subspecialists.

A second aspect of child health care training that should be expanded is the "team approach" to child care. The team approach does not necessarily require any particular organizational structure, but it does require recognition of multiple social and other factors that influence health and disease status and that must be addressed in order to meet

child care needs. Child professionals should have the opportunity to apply their particular skills in settings that allow them to have access to other specialists in child health care. Pediatricians will continue to provide the entire spectrum of child medical care services in the areas where they practice. Family physicians and general practitioners (FP-GP's) have demonstrated their willingness to practice in rural areas and their financial viability in such areas and along with nurse practitioners will be providing the bulk of primary child care in these areas. In addition, the National Health Service Corps (NHSC) is an effort to provide health care personnel in areas that do not attract adequate numbers of health care providers. The training and resources available to NHSC staffs must be sufficient to meet all of the primary care needs in such areas if they are to be effective in the future.

Family physicians, adolescent medical specialists, and nurse practitioners have demonstrated their interest and skills in dealing with many of the sexually related needs of older children. They will be expected to provide the bulk of this care until general pediatricians are also adequately trained to meet those needs. The problems of the chronically handicapped child are also best served by teams from a variety of disciplines. Nurse practitioners offer a particular strength in dealing with chronic problems that require special support services along with medical services.

A community health approach is needed to address the serious consequences of alcohol and drug abuse by youths. Programs to develop awareness and to identify children with these problems must be broadly based and innovatively developed. All child care professionals must be trained both to recognize these conditions in their acute manifestations and to refer children to the appropriate alcohol and drug services or to other youth social services agencies for longer term counseling.

A great deal of attention must be paid to mental health problems of children, such as learning, language, and behavior disorders. A significant increase in the number of psychologists and other professionals to deal with these problems should be encouraged. To complement this, however, pediatricians, FP-GP's and nurse practitioners also must expand their training in developmental and behavioral disorders. Again, only a coordinated team approach is likely to meet the great need in this area. In addition, public and private insurance programs will need to restructure their payment and reimbursement systems to provide such services adequately.

PRESENT AND FUTURE CHILD HEALTH CARE NEEDS

Child Population Estimates and Trends

Child health manpower needs are determined in large part by the number of children in the population. The total child population trend for the years 1975–95 resembles a U-shaped curve—a decrease that bottoms out in 1984 will finally increase to the 1975 level by 1995. Between 1975

and 1985, the number of children under age 20 will decrease from 76,257,000 to 71,249,000 (table 1). Beginning in 1985, this population will steadily increase through the end of the decade and continue to grow through the middle of the next century. Projections of the child population into the distant future are subject to substantial variation as birth and fertility rates change, but the current middle-range (Series II) estimate from the Census Bureau calculates the number of children in the year 2050 to be only 14 percent above the 1975 figure (*1–3*).

These crude trends, however, are not sufficient for determining specific child health care needs because the age distribution of children under 20 will shift markedly. Because the health care needs of the youngest differ widely from older groups, the population trends must be examined in detail. Beginning with the year 1980, children under age 5 show the earliest increase in number among the under-20 subgroups—from 16,594,000 to 20,133,000 in 1990. A sharp decline in numbers of this group

TABLE 1. Total Child Population by Age Group, 1975–90[1]

	Number of Children Under Age 20 (in thousands)				
Year	0–5	5–9	10–14	15–19	Total
1975	16,448	17,866	20,682	21,261	76,257
1976	15,888	17,984	20,084	21,469	75,425
1977	15,718	17,703	19,461	21,429	74,311
1978	15,843	17,417	18,829	21,322	73,411
1979	16,176	17,008	18,304	21,164	72,652
1980	16,594	16,599	18,038	20,851	72,082
1981	17,215	16,058	18,066	20,254	71,593
1982	17,881	15,897	17,877	19,642	71,297
1983	18,514	16,019	17,593	19,011	71,137
1984	19,060	16,352	17,193	18,486	71,091
1985	19,476	16,767	16,788	18,218	71,249
1986	19,759	17,387	16,246	18,249	71,641
1987	19,945	18,052	16,081	18,066	72,144
1988	20,065	18,681	16,201	17,784	72,731
1989	20,127	19,222	16,530	17,382	73,261
1990	20,133	19,635	16,941	16,974	73,683
1995	19,447	20,280	19,788	17,117	76,632
2000	18,491	19,593	20,422	19,958	78,464
2005	18,722	18,651	19,742	20,605	77,720
2010	19,909	18,887	18,805	19,938	77,539
2015	20,676	20,071	19,041	19,007	78,795
2020	20,556	20,836	20,221	19,247	80,860
2025	20,193	20,719	20,982	20,427	82,321
2030	20,327	20,368	20,870	21,199	82,764
2035	20,976	20,512	20,530	21,103	83,121
2040	21,560	21,164	20,675	20,771	84,171
2045	21,719	21,739	21,318	20,914	85,690
2050	21,666	21,889	21,880	21,547	86,982

[1]Adjusted for census undercount; see source 2.

SOURCES: (1) U.S. Bureau of the Census: Population estimates and projections. *Estimates of the Population of the United States by Age, Sex, and Race: 1970–1977;* (2) U.S. Bureau of the Census: *Projections of the Population of the United States: 1977–2050.* Series P–25, No. 704, July 1977.

occurs between 1990 and 2000 followed by a steady increase up to the year 2050. Trends for this youngest group, of course, determine the future age structure of the population modified primarily by the age-specific mortality rates.

The number of children of ages 5–9 years decreased from 17,866,000 in 1975 and will continue to decrease until it reaches a low point of 16,767,000 in 1985. Following the trend of the younger age group, the group 5–9 years old will then increase in numbers between 1985 and 1995, decline until 2005, and steadily increase through 2050.

The population with the longest decline is children ages 10–14 years. Their numbers will decrease from 20,682,000 in 1975 to 16,941,000 by 1990. The trend for this group then parallels that of the younger age groups from 1990 to the middle of the next century. Finally, youths ages 15–19 experience the greatest decrease among all children and youths between 1975 and 1990, which is followed by the same pattern of rise, fall, and then continued rise experienced by each population subgroup through 2050 (see table 1).

The short-term result of these shifts is that the child subgroups with the smallest numbers in 1980 (0–5 and 5–9 years of age) will be the largest in 1990 and vice versa. During the 1980's the number of children under age 5 will increase by over 21 percent; the number of children 5–9 years old will increase by about 18 percent; children 10–14 years old will manifest a very different trend—the number will decline by 6 percent and the number of youths 15–19 years old will fall by nearly 19 percent. The long-range result is that the child population will grow only slowly, unless the current "baby boom" is of longer duration and reaches higher rates than have been forecast.

Child Health Care Requirements

A number of attempts have been made to estimate manpower requirements for child health care. These calculations can be made on the basis of "need" or "demand." "Need" attempts to measure the morbidity or illness within a population that would benefit from medical care as well as the preventive and other services that would minimize illness and prolong life. "Need" differs from actual utilization to the degree that health care services are used inappropriately and to the degree that people who would benefit from medical care are not receiving it. "Demand" attempts to measure the quantity of medical care that a population will seek or accept at a given point in time. It is determined not only by need but also by the patient and practitioner preferences; economic conditions; the supply, organization, and distribution of physicians; and other factors that determine the utilization of care.

Demand

Attempts to forecast future manpower requirements based on present utilization of health services are fraught with difficulties. First of all, such projections tend to incorporate existing inequities in the delivery of health

care. Similarly, they generally do not take into account the effect of programs that are focused on current unmet needs such as the National Health Service Corps. Finally projections based on present utilization do not take into account the independent effects of manpower supply on the demand for health care services. Thus, to the degree that "physician-induced" demand can occur, predictions based on present utilization would underestimate future demand as the per capita number of physicians increases. Similarly, to the degree that increased manpower leads to a geographic redistribution of health care providers and an increase in the numbers in areas with currently unmet needs, projections based on present utilization would also underestimate future trends.

Although the size of the total child population is one of the significant factors in determining demand for health care services, the age distribution of children also has a marked effect. For example, if 1975 age-specific utilization rates were to remain unchanged, the total number of health care visits by all children in 1990 would increase only about 3 percent. Because of the expected increase in young children, however, the demand for services by children less than 2 years of age would increase more than one-third, and there would be a 27 percent increase in the demand for health care by children aged 2–5. On the other hand, the demand for services by older children would decline during the coming decade (table 2).

These population shifts have important implications for the distribution of child health practitioners. Pediatricians tend to see a much younger population group than do FP-GP's (*4, 5*). Thus, if the only changes that were to occur were the population age shifts discussed above, the demand

TABLE 2. Percent Distribution of Office Visits by Children and Young Adults

	Years		
Age	**1973**	**1975**	**1977**
Under 15 years			
Pediatrician	36.1	43.7	48.6
GP-FP	37.4	34.1	32.4
Internist	1.6	2.1	1.4
Ob-Gyn	0.5	1.1	0.3
15–21 years			
Pediatrician		4.9	
GP-FP		45.5	
Internist		6.3	
Ob-Gyn		14.6	
All ages 21 or less			
Pediatrician		29.3	
GP-FP		38.3	
Internist		3.6	
Ob-Gyn		6.1	

NOTE: Data from the National Ambulatory Medical Care Survey.

SOURCES: National Center for Health Statistics: *Health United States, 1979.* DHEW Pub. No. (PHS) 80–1232, Table 35; National Center for Health Statistics: Ambulatory Care Utilization Patterns of Children and Young Adults. *National Ambulatory Medical Care Survey, U.S., January–December 1975.* Series 13, No. 39. August 1978.

for child services from pediatricians would increase nearly 20 percent, while that for FP-GP services would increase just over 2 percent.

The actual effect on practice patterns, however, is likely to be much more complex. As the supply of pediatricians and FP-GP's increases substantially over the coming decade, child health care may be redistributed between the two specialties.

Projections based on present utilization, then, are of limited value in drawing conclusions about training and practice patterns for the future. Present utilization is largely a reflection of the present supply of manpower and existing economic and other demographic characteristics. Basing policies for the future on present demand would tend to replicate present conditions and not to address existing inequities. For these reasons, it is more appropriate to analyze child health care needs rather than current utilization as a basis for policymaking.

Unmet Child Health Needs

Unmet child health needs can be separated into two main types. One group consists of those children who still have very limited or no real access to medical care or to other health-related services. The second group includes children who may have access to medical care, but who have specific health needs that are not being treated adequately by their health care practitioners. The implications for training and practice of health care professionals differ greatly depending upon the type of unmet needs. In general, solutions for unserved population groups involve both the overall supply of practitioners as well as the financial and other incentives that determine practice location and character. On the other hand, solutions intended to address needs that are currently overlooked or inadequately met also require attention to the educational process of health professionals.

Underserved Groups

The proportion of children with limited or no access to medical care has been declining in recent years. Now, more than 90 percent of children have a regular source of health care (*6, 7*). Nevertheless, over 4 million children still had no usual source of care as recently as 1978 (*6*). In addition, if those children who have a usual source of care but no regular physician are also counted, then some 30 percent of all children fall into the underserved category (*6*). Thus, although the situation has been improving in the past decade, significant barriers still exist to care for a substantial number of children.

The population groups that have the highest degree of inadequate access are those in central cities and rural areas, the poor, adolescents, and blacks. In the central cities in 1974, over 2.3 million children had no regular source of care (*6*). In addition, 3.4 million children had no regular physician (*6*). Thus, although more than 2 out of 3 children had a regular physician, nearly 6 million children in central cities were still without regular access to physician care. Very nearly as many children in rural (non-SMSA) areas (2.3 million) as in central cities had no regular source

of care. Children in suburban areas generally had excellent access to private physicians, but even in that group nearly 2 million had no regular source of care.

Closely related to geographic location, of course, is income. Children in families with total incomes less than $5,000 had very limited physician access in 1974 (*6*). More than 18 percent of those children had no regular source of care and another 19 percent had no regular physician. Thus, 37 percent of children in poor families had limited or no access to care, a rate nearly three times that of children in families with incomes of $15,000 or more. It is interesting to speculate that the difference among the income groups was largely due to a relative lack of access to pediatricians. Among children who had a regular physician, the percentage of children regularly seeing a general practitioner was relatively constant (ranging from 42 to 49 percent) across income levels, while those with regular access to pediatricians varied from 15 percent in the lowest income group to over 36 percent in the highest income group (*6*). This parallels the geographic imbalance; pediatricians were twice as likely to be the regular source of care for children in the suburbs than in rural areas, and children in the central cities also lagged behind the suburban areas in access to pediatric services.

The third group with a relative lack of access to medical care comprises the adolescents in this country. The percent of children with no regular source of care increases dramatically with age (*7*). The rate for adolescents 16 and 17 years of age was nearly 15 percent in 1974 (*6*), more than double the rate for children under 6 years of age. If those who had no regular physician are included, nearly one in four adolescents 16–17 years of age had inadequate access to medical care in 1974. The rate for those 12–15 years of age was nearly 22 percent.

Adolescents do not have regular physician care for many reasons. First, adolescents are generally, although often inaccurately, thought to be too healthy to require medical care. The "hidden" medical needs of adolescents are discussed in the following section. Second, adolescents are frequently unwilling to seek medical care and to admit their need for medical care (*8*).

Although racial differences have declined remarkably in the past 15–20 years (*7*), blacks continue to have a disproportionate degree of unmet medical needs. Even when corrected for income, blacks use physician services less than Hispanics and whites (*6*). Urban blacks are second only to southwestern Hispanics in failing to have a regular source of care (*7*). In 1978, the rate of having no usual source of care among black children was one and one-half times the rate of that among white children and was nearly twice the rate of having no regular physician (*9*). Taken together, more than half of all black children in 1978 had either no usual source of care (9.7 percent) or no regular physician (40.5 percent) (*9*). It is impossible to separate out all of the related effects of race, income, geography, and age, but it appears that black children still constitute a distinct underserved group.

In sum, the vast majority of children in this country have excellent access to medical care, but a substantial number of underserved exist and

are concentrated in specific geographic, socioeconomic, age, and racial groups.

Adolescent Medical Care

For many health professionals, adolescents constitute a "hidden" group with unmet health care needs. This situation has been well described by Hein and Cohen:

> Although adolescence is often considered a healthy period of life, there are clusters of illnesses, conditions and factors which necessitate a special approach by the health professional for youngsters in this age group (*10*).

Adolescent health problems include many characteristic medical problems such as scoliosis, acne, and mononucleosis (*11*). More typically "adult" causes of morbidity and mortality also begin to appear, particularly with the very high rates of violent death and injury and of alcohol abuse among adolescents (*12*). Many young people with these problems are already being cared for (table 3). Surveys of defined populations, however, have reported a significant number of untreated health problems. For example, physicians examining a sample of black youths in Harlem in the late 1960's found that for every condition that was already being treated there were eight conditions requiring treatment (*13*). Nearly half of the youths examined were referred for medical care. Similarly, among adolescents in detention facilities in New York City, 46 percent were found to have medical conditions (*14*). Because 0.5 million of such high-risk youngsters are in detention in the United States (*14*), this constitutes a very significant body of unserved medical care need.

The degree to which adolescents in lower risk socioeconomic groups have unmet medical care needs has not been documented. Because adolescents are known to be reluctant to seek medical care, however, a substantial reservoir of need is assumed to exist even in adolescents with regular sources of medical care. Analyzing access to medical care in terms of a "symptoms-response ratio," Aday, Andersen, and Fleming concluded that

> it is older children and young adults who get less care in response to their symptoms of illness than the physician panel thought appropriate. These are the groups also least likely to have insurance coverage and to receive physician services (*15*).

The areas of specific needs that have been identified include alcohol and drug abuse; behavioral, learning, and mental health problems; chronic and handicapping conditions; and sexually related conditions and diseases.

Sexuality and Family Planning Needs

Adolescent pregnancy has become a less critical health problem in recent years, but other sexually associated conditions have worsened. Since the mid-1970's, the rate of adolescent pregnancy has declined by nearly 11 percent (*16*). Sexual activity has soared, however (*17*). As noted

TABLE 3. Number and Percent Distribution of Office Visits Made by Children and Young Adults by Age of Patient, According to Principal Diagnosis: United States, 1975

Principal Diagnosis Classified by ICDA Category[1]		Number of Visits in Thousands	Total (Total Number of Visits per Diagnosis Divided by All Diagnoses)	Under 2 Years		2–5 Years		6–14 Years		15–21 Years	
				Number	Percent	Number	Percent	Number	Percent	Number	Percent
All diagnoses		157,431	100.0	25,661	100.0	26,736	100.0	46,600	100.0	58,410	100.0
Infective and parasitic diseases	001–136	10,466	6.6	1,622	6.3	1,758	6.6	3,684	7.9	3,401	5.8
Neoplasms	140–239	1,546	1.0	169	0.7	116	0.4	198	0.4	763	1.3
Endocrine, nutritional, and metabolic disorders	240–279	2,309	1.5	196	0.8	162	0.6	524	1.1	1,427	2.4
Mental disorders	290–315	3,671	2.3	106	0.4	147	0.5	1,270	2.7	2,144	3.7
Diseases of nervous system and sense organs	320–389	15,341	9.7	2,424	9.4	3,666	13.7	5,477	11.8	3,774	6.5
Diseases of circulatory system	390–458	1,142	0.7	83	0.3	119	0.4	259	0.6	681	1.2
Diseases of respiratory system	460–519	35,238	22.4	5,920	23.1	8,845	33.1	11,910	25.6	8,563	14.7
Diseases of digestive system	520–577	3,376	2.1	452	1.8	392	1.5	949	2.0	1,583	2.7
Diseases of genitourinary system	580–629	6,079	3.9	170	0.7	606	2.3	991	2.1	4,310	7.4
Diseases of skin and subcutaneous tissue	680–709	11,252	7.1	1,159	4.5	1,373	5.1	3,747	8.0	4,973	8.5
Diseases of musculoskeletal system	710–738	3,021	1.9	429	1.7	332	1.2	894	1.9	1,365	2.3
Symptoms and ill-defined conditions	780–796	6,772	4.3	696	2.7	1,158	4.3	2,357	5.1	2,560	4.4
Accidents, poisonings, and violence	800–999	13,396	8.5	643	2.5	1,982	7.4	4,876	10.5	5,907	10.1
Special conditions and examinations without sickness	Y00–Y13	39,868	25.3	10,690	41.7	5,544	20.7	8,217	17.6	15,397	26.4
Other diagnoses[2]		2,611	1.7	637	2.5	418	1.6	786	1.7	770	1.3
Diagnoses given as "none"		825	0.5	149	0.6	93	0.3	223	0.5	361	0.6
Diagnoses unknown[3]		801	0.5	69	0.3	5	0.00	266	0.6	462	0.8

[1]Based on the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States*, 1965 (ICDA).
[2]280–289, Diseases of the blood and blood-forming organs; 630–676, complications of pregnancy, childbirth, and the puerperium; 740–759, congenital anomalies; 760–779, certain causes of perinatal morbidity and mortality.
[3]Blank diagnosis; noncodable diagnosis; illegible diagnosis.

NOTE: Due to rounding, the totals may not exactly match.

SOURCE: National Center for Health Statistics: Ambulatory care utilization patterns of children and young adults. *National Ambulatory Medical Care Survey, U.S., January-December 1975*. Series 13, No. 36, Table 8.

by Zelnik and Kantner, between 1971 and 1976 a 50-percent increase occurred in the proportion of 17-year-old girls who have had sexual intercourse at least once (*18*). Among adolescents in detention facilities in New York City, Hein *et al.* reported a mean age of 12 years at first intercourse (*14*).

The disparity between increasing sexual activity and decreasing birth rates appears to be the result of an increasing reliance on abortion and the use of more effective contraceptives. Utilization of family planning services by teenagers has sharply increased. In 1969, fewer than 300,000 teenagers used such services, but by 1975, over 1 million received family planning services (*18*). Still, almost four out of five adolescents engaging in sexual activity and not intending pregnancy do not use contraceptives regularly (*18*).

The consequences of increased sexual activity among teenagers include pregnancies, sexually transmitted diseases, abortions, and an earlier and increased risk of carcinoma of the cervix. Approximately 25 percent of teenage women have had at least one pregnancy by the age of 19 and about 1 million young women become pregnant each year (*12*). There are a number of inherent risks in teenage pregnancies. Very young mothers commonly have hypertension during pregnancy, premature labor, or a small pelvis contributing to birth injury (*19*). The infants of these mothers also have an increased risk of being premature or of low birth weight. Mothers under 15 years of age have the highest risk of any age group for producing a low-birth-weight infant (*20*). Fortunately, this group has remained small, with very low birth rates, and accounts for only one-third of 1 percent of births (*16*). Teenage mothers encounter a number of social problems such as disruption of education and high rates of public dependency.

Sexually transmitted diseases are another significant consequence of sexual activity. In the mid-1970's, gonorrhea had reached epidemic proportions. Recent information indicates the incidence has stabilized. Still, nearly 8 percent of females screened upon admission to detention facilities had asymptomatic, unsuspected gonorrhea (*14*). Gonorrhea, syphilis, and two more recently appreciated major public health problems—herpes virus and nonspecific urethritis—account for 8–12 million cases of sexually transmitted diseases per year (*21*). Young people between the ages of 15 and 24 represent 75 percent of the reported cases. In addition, 75,000 women of childbearing age became sterile as a result of pelvic inflammatory disease caused by sexually transmitted disease (*21*).

With the increased number of pregnancies, there has been an increased use of abortions by these women. Three out of every 10 teenagers decide to terminate their pregnancies (*22*). As a result of the recent Hyde Amendments, a reduction in the number of legal abortions may result in increasing birth rates or more illegal abortions among teenagers, as well as among others.

Adolescents utilize a variety of health care settings for treatment related to sexuality and family planning needs. They generally receive care at clinics and health centers such as venereal disease clinics, family planning clinics, teenage health centers, and in the offices of FP-GP's. Although teenagers' use of family planning clinics has increased dramatically, their

use of prenatal care is lower than any other age group. Those aged 15–19 years are the least likely to receive prenatal care in the first trimester (53 percent of teens compared to 81 percent aged 25–34 years in 1975) (*18*). Additionally, they were the most likely to have no prenatal care at all—2 percent in 1975 (*23*).

Increased sexual activity among adolescents creates the need for sex education, family planning counseling, and parenting education as well as medical care to alleviate the associated problems. Public Law 95–626, Titles VI and VII of the Health Services and Centers Amendments of 1978, is designed to develop programs to prevent adolescent pregnancy and to provide care and support services for pregnant adolescents and young parents. A wide variety of care services must be provided by adolescent pregnancy programs to meet the needs and objectives of the act.

Sexuality-related services for adolescents should be offered in settings where the adolescent is most comfortable and secure (*24*). Two studies commissioned by DHHS' Office of Family Planning indicate that adolescents were more concerned with privacy and nonjudgmental sympathetic treatment than with the physical surroundings of the treatment center (*23*). Clinics and community health centers may be the more desired and appropriate location for sexuality-related and family planning services for young people. As an alternative, family physicians and appropriately trained pediatricians could assume this role to a greater degree if they provided settings adapted to the ages of such patients and assured full confidentiality for their adolescent patients.

Alcohol and Drug Abuse

A major health problem of youths today, although seldom treated in health care settings, is misuse of alcohol. According to a 1974 national study of youths 12–18 years of age, 74 percent of teenagers drink (*24*). Among youths who drink, 19 percent were identified as problem drinkers. In other words, of those youths who drink, some 25 percent have either been drunk at least six times in the past year or have had trouble with the police or with friends two or more times in the past year as a result of drinking. The frequency of drunkenness among youths is three to four times greater than that for all drinkers in the United States (*25*). As expected, the incidence of problem drinking increases with age, from 5 percent and 4.4 percent among seventh grade boys and girls, respectively, up to 40 percent and 21 percent among twelfth grade boys and girls, respectively. Early findings from a 1978 study by Research Triangle Institute show striking similarities to the 1974 figures.[2]

A comprehensive review of youth drinking surveys conducted between 1945 and 1975 (*26*) found that the percentage of youths who report getting drunk has increased steadily, while the prevalence of teenage drinking has remained relatively constant since 1965. Between 1966 and 1975, the

[2]Personal communication, S. Maloney, National Institute on Alcohol Abuse and Alcoholism (NIAAA), Division of Prevention, July 1980.

proportion of youths getting drunk at least once a month increased to 19 percent compared with 10 percent before 1966.

Unlike adults with alcohol problems, youths seldom suffer from alcoholism, but rather episodic and binge drinking. The health problems related to this type of misuse of alcohol are usually impaired driving performance, accidents, aggression and violence, disturbed personal relationships, property damage, impaired school performance, and impaired job performance. Unfortunately, data on the relationship between alcohol and these specific health problems, with the exception of accidents, are unavailable. According to the Surgeon General's Report on Health Promotion and Disease Prevention (*27*), accidents are the number one cause of death in the 15–24 age groups, and some 60 percent of all alcohol-related fatalities are among young people (*28*).

Children of alcoholic parents also manifest a substantial number of unmet health needs; at least 28 million children are estimated to be so affected (*29*). The major health problems encountered by these children are hyperactivity and enuresis (*30*). Commonly reported mental health problems include antisocial behavior, poor self-concept, depression, and suicide (*30*). Entering adulthood, children of alcoholics are at very high risk for developing alcohol-related problems compared with children of nonalcoholic parents (*30*).

Second only to alcohol abuse problems among youths are problems associated with illicit drugs. Before 1962, less than 2 percent of the population had any lifetime experience with illicit drugs (*28*). A recent National Survey on Drug Abuse found that between 1972 and 1979, those 12–17 years of age doubled their use of marihuana and cocaine (*31*). For those 18–25 years of age, cocaine use tripled and marihuana use increased by 70 percent (table 4). This same report found that 17 percent of youths 12–17 years of age were current users of marihuana. This proportion increased to 35 percent among those 18–25 years of age. For cocaine use in the same populations the increase went from 1 percent to 9 percent.

A very recent survey of 1978 high school seniors revealed that over 10 percent used marihuana daily, 5.7 percent drank alcohol daily, and 27.5 percent smoked (*32*).

The relationship of these alcohol and drug abuse prevalence figures to the utilization of health care services and providers is unclear. Unfortunately, the majority of these youths are not seen by health care workers, and if they are seen, they are seldom diagnosed as drug abusers. When health problems such as sprained ankles occur as a result of drinking or drug use, youths appear for treatment but often are diagnosed only as having a physical and not a behavior-related problem. Teachers, school counselors, nurses, social workers, and police are much more likely to identify and counsel these youths than are physicians.

One study, conducted in Allegheny County, Pennsylvania, has examined the relationship of alcohol abuse prevalence to the utilization of health care services.[3] According to a random sample of 650 youths, aged

[3] Personal communication, D. McCartney, principal investigator on NIAAA study, "Tri-County Study of Adolescent Drinking," CONSAD, Pittsburgh, Pa., July 1980.

TABLE 4. Drug Abuse Statistics, 1979 Preliminary Population Projections

Drug	12–17 Years (pop. 23,419,000)				18–25 Years (pop. 31,985,000)			
	%	Ever Used[1]	%	Current User[2]	%	Ever Used	%	Current User
Marihuana and hashish	31	7,300,000	17	4,000,000	68	21,700,000	35	11,200,000
Inhalants	10	2,300,000	2	500,000	17	5,400,000	1	300,000
Hallucinogens	7	1,600,000	2	500,000	25	8,000,000	4	1,300,000
PCP	4	900,000	*	*	15	4,800,000	*	*
Cocaine	5	1,200,000	1	200,000	28	9,000,000	9	2,900,000
Heroin	0.5	100,000	–	–	4	1,300,000	–	–
Stimulants	3	700,000	1	200,000	18	5,800,000	4	1,300,000
Sedatives	3	700,000	1	200,000	17	5,400,000	3	1,000,000
Tranquilizers	4	900,000	0.6	100,000	16	5,100,000	2	600,000
Analgesics	3	700,000	0.6	100,000	12	3,800,000	1	300,000
Alcohol	70	16,400,000	37	8,700,000	95	30,400,000	76	24,300,000
Cigarettes	54	12,600,000	12	2,800,000	83	26,500,000	43	13,800,000

[1]Ever used = used one or more times in a person's life.
[2]Current user = used at least once in the 30 days before the survey.
KEY: * = not included in the survey; – = amounts less than 0.5 percent are not listed.

12–18, the prevalence of problem drinking (as defined above) was 14.6 percent. The percentage of youths having health care visits were as follows:

Drug treatment programs	1.2 percent
Alcoholism treatment program	0.7 percent
Community mental health centers	1.6 percent
Child welfare agencies	1.9 percent
Social service agencies	1.6 percent

Unfortunately, physician offices and hospitals were not included in the questionnaire. For problem-drinking youths, only 15.1 percent had any kind of help, primarily in alcohol or drug treatment centers. Based on this study, then, it appears that almost 85 percent of youths who need alcohol-related counseling and treatment are not getting it.

Mental Health Problems

Accurate estimates of the incidence and prevalence of mental disorders among children are seriously limited because of the lack of agreement on appropriate indicators of mental illness. In fact, for this very reason no national estimates have been released on mental illness among noninstitutionalized children. The National Institute of Mental Health (NIMH) is designing a new classification system that will include mental disorders, psychological symptoms, and social problems (*33*).

Current projections are made from reports of children utilizing mental health services and very likely understate the need (*34*). Based on NIMH tabulations (*35*), one-quarter of all those admitted (385,237) to State and county mental hospitals in 1975 were under 25 years of age. The age group with the highest percentage of admissions were those 18–24 years old and

28+ Years (pop. 123,864,000)				Total (pop. 179,358,000)			
%	Ever Used	%	Current User	%	Ever Used	%	Current User
20	24,800,000	6	7,400,000	30	54,800,000	13	22,600,000
4	5,000,000	0.5	600,000	7	12,700,000	1	1,400,000
5	6,200,000	–	–	9	15,800,000	1	1,800,000
2	2,500,000	*	*	5	8,200,000	*	*
4	5,000,000	1	1,200,000	8	15,100,000	2	4,400,000
1	1,200,000	–	–	1	2,600,000	–	–
6	7,400,000	0.5	600,000	8	13,900,000	1	2,1000,000
4	5,000,000	–	–	6	11,100,000	0.7	1,200,000
3	3,700,000	–	–	5	9,800,000	–	–
3	3,700,000	–	–	5	82,000,000	–	–
92	114,000,000	61	75,000,000	90	160,800,000	61	108,600,000
83	103,000,000	37	45,900,000	79	142,100,000	36	62,400,000

constituted 19 percent of the total. Some 2 percent of the admissions were under 14 years old and 4 percent were 14–17 years old. Similarly, in private psychiatric hospitals, youths under 25 years old represented more than a quarter of all admissions (7,864). A slightly different age breakdown was noted—15 percent for the 18–24 age group, 9.5 percent for the 15–17 age group, and 2 percent for those under 14.

In 1975, general hospital psychiatric inpatient units also reported that about one-fourth of those discharged were under 25 years of age, of whom 18 percent were in the 18–24 age group, 7 percent in the 14–17 age group, and only 1 percent in the under-14 age group. In 1975, over 40 percent, or 1,406,065, of all admissions for outpatient psychiatric services were under 25 years of age; the older youths ages 18–24 represented the largest percentage, or 16 percent; the 13–17 age group, 11 percent; the 7–12 age group, 10 percent; and those under 7, 4 percent.

Although these data on the use of mental health services show that young people account for a large portion of all admissions, precise estimates on the total number affected by mental and behavioral problems and the amount of unmet need are as yet unknown. If the situation for children parallels the estimates from adult data, the unmet need is great. While recognizing the data limitations, Regier *et al.* estimated that at least 15 percent of the U.S. population is affected by mental disorders in any one year, but only a fraction of these people received care (*36*).

According to a recent review of child psychiatry literature, Robbins estimated the prevalence of mental disorders in children to be between 5 and 15 percent (*37*). These prevalence rates are reflected in surveys of physicians but not in routine physicians' reports. Based on several studies of pediatricians, family practitioners, and nurse practitioners (*4, 38, 39*), only about 1 percent of children are reported to have mental disorders. However, when practitioners were asked specifically about the presence of

behavioral problems, the numbers (3–25 percent) were much higher (*39–41*).

Another indicator of serious mental health problems among adolescents is the increasing rate of suicides and homicides. Suicide, the third leading cause of mortality among teenagers and young adults, accounted for 5,600 deaths in 1977 (*42*). The suicide rate for youths has increased fivefold since 1950. The mortality rate does not, of course, include the high number of unsuccessful attempts at suicide, which may be three times the reported death rate. Among suicide victims, white males represent the largest number.

Homicide deaths among youths 15–24 years old numbered about 5,250 in 1977 (*42*). This number accounted for over 10 percent of all deaths among adolescents. Homicide is the leading cause of death among black adolescent males and far outnumbers the rate among white males.

Both the National Ambulatory Medical Care Survey (NAMCS) (*43*) and the Health Interview Survey (HIS) (*44*) show a low frequency of alcohol-, drug-, and mental-health-related reasons for visits or diagnoses. For example, the 1977 NAMCS shows that mental disorders represent only 1.3 percent of the reasons for visits for youths under 15. The HIS, for 1975, shows that 3.1 percent of the total number of visits to physicians were for mental and nervous disorders. The large gap between these studies and the independent estimates of mental health needs suggests that the need for mental health treatment may be unmet, that providers other than physicians are delivering much of the care, or that the reporting systems are inadequate in the area of mental health.

A recent report by Starfield and associates at the Johns Hopkins University suggests that much of the discrepancy between the routine reports and the special studies lies in specific characteristics of the national surveys (*41*). In particular, they suggest that the sampling techniques, diagnostic coding systems, and the practice of reporting only first diagnoses all tend to underestimate the degree of psychosocial morbidity when compared with specific studies. In addition, they also noted several factors that would tend to reduce the likelihood that physicians would, in fact, diagnose and treat psychosocial illness. These factors include present reimbursement practices that stress payment for technological procedures, high case loads and short duration of physician rotations through ambulatory care teaching facilities, and the willingness of physicians with limited psychosocial training to deal with problems of this nature.

Chronic Disability[4]

Estimates of chronically disabled children in the United States range from 10.5 to 14 million, or 12 to 13 percent of all children. Over the next decade, the number of affected children is projected to increase in

[4]For a detailed discussion of the needs of chronically ill and handicapped children, see Henry T. Ireys in this volume.

proportion to the slightly increasing birth rate (*45*). Chronic handicapping conditions cover a broad spectrum of problems including disorders of the central nervous system, musculoskeletal problems, cosmetic disorders, malignancies, mental retardation, psychiatric and severe development disorders, and persistent learning disabilities (*46*). Severe functional disabilities associated with these conditions affect a relatively small proportion of the population. Of the noninstitutionalized children under 17 years of age, 3.4 percent are limited in their activity. Just over one-half of that group are limited in their major activity such as regular preschool or school activities and play (*47*).

An estimated 2.3 percent of all children live in long-term residential institutions (*48*). The majority of these children are profoundly mentally retarded, multihandicapped, or severely emotionally disturbed. The remainder of the chronically disabled population of children live with their families and are relatively less limited in their activities.

As a group, chronically disabled children have distinctive needs. Generally, they have an increased need for primary care and hospital services. Many children with chronic conditions require frequent examinations and other health services because of their increased risk of infections and accidents. These children suffer also from acute conditions that require hospitalization more frequently than do children with no chronic problems (*45*). In a survey of 200 handicapped children, one-fifth had been hospitalized in the previous 12 months due to other medical conditions (*45*). Frequently, mentally retarded children have medical problems distinct from their mental retardation (*45*).

Of the total U.S. noninstitutionalized population under the age of 24 years, the average number of physician visits per person per year was nearly four times greater for individuals limited in a major activity than for the total population. For those limited, but not in major activity, the number of visits was approximately twice that of the total population (table 5) (*49*).

Psychological and social assistance for chronically disabled children represents another distinctive need. Handicapped children and their families are more likely to have psychological and social problems, especially "adjustment" problems compared with healthy children and their families. A wide variety of factors determines the psychosocial adaptability of the chronically disabled child and family. For example, the impact of a chronic condition may be inversely related to the severity of the condition. In other words, moderately severe conditions may have a more adverse effect on psychosocial functioning than either mild or severe chronic conditions.

A continuum of medical, physical, and psychological services as well as transportation, housing, employment, and educational services is necessary to meet the distinctive needs of chronically disabled children and their greater utilization of health care services. Presently, physicians have little specific training in working with the handicapped child's environment and coordination of care (*45*). A system of training and coordination of health care professionals, educators, and psychologists will help meet the needs of the chronically disabled children.

TABLE 5. Number of Physician Visits by Degree of Activity Limitation in Chronically Disabled Children

Age	Total Population	Not Limited in Activity	Limited–Not in Major Activity[1]	Limited in Amount or Kind of Major Activity	Unable to Carry on Major Activity
All ages	5.1	4.2	7.4	10.5	12.5
0–24	4.9	4.6	8.7	13.7	10.8
0–14	5.2	4.9	[2]9.6	14.3	13.7

[1]Major activity = ability to work, keep house, or engage in school or preschool activities.
[2]Number for 5–14-year-olds.

SOURCE: U.S. Department of Health, Education and Welfare: Current Estimates from the Health Interview Survey. Series 10, No. 126. DHEW Pub. No. (PHS) 78–1554, September 1978.

PRESENT AND FUTURE PRACTITIONERS

Pediatricians

Supply and Requirements

A variety of different projections published by the American Medical Association (AMA), the Bureau of Health Professions (formerly the Bureau of Health Manpower), and the Graduate Medical Education National Advisory Committee (GMENAC) demonstrate the remarkable growth in the supply of pediatricians expected over the next decade (table 6). Earlier estimates showed an average increase of over 100 percent or approximately 25,000 pediatricians between 1975 and 1990, while more recent GMENAC figures are closer to 65–70 percent. These projections reflect the trends of the early and mid-1970's, a time of rapid growth in medical school enrollments (*50*) and movement of graduate physicians into primary care specialties (*51*).

Whether doubling the number of pediatricians will in fact bring manpower supply and child health needs into balance has been the subject of much discussion but little analysis. The literature is dominated instead by standard physician to population ratios that are generally based on current utilization or consensus opinion (*52*). The major variables include alternative providers, practice arrangements, or physician productivity. Only a few analyses have considered pediatric manpower requirements in terms of child care needs (*53, 54*). Unfortunately, existing methodologies are often based on idealized standards of care or unrealistic estimates of resources and thus are limited in value. Nearly all the different estimates suggest, however, that present supply is nearly adequate and that the 1990 figures will constitute an oversupply.

Because of the shortcomings of the earlier studies, the Bureau of Health Professions and the Graduate Medical Education National Advisory Committee have undertaken major studies of physician manpower requirements (*55*). Their approaches are quite distinct. The Bureau of Health Professions uses a utilization-demand methodology, while

TABLE 6. Supply Estimates and Projections of Total, Active Pediatricians[1]

Source	1974	1975	1976	1977	1978	1980	1985	1990
(1) Health Resources Administration	23,530					33,550	42,530	51,170
(2) Bureau of Health Manpower	22,870	24,345					3,210	42,930
(3) Bureau of Health Manpower	22,860	24,320				33,100	41,750	50,700
(4) J. Bobula		24,918				33,573	42,628	51,221
(5) AMA, annual and								
(6) AMA, adjusted		24,767	25,863	26,455	27,639			
Mean of estimates	23,087	24,588	25,863	26,455	27,639	33,358	42,460	51,468
(7) Bureau of the Census: Children per total active pediatrician		2,759	2,581	2,487	2,349	1,903	1,504	1,291
(8) GMENAC estimate					[2]22,964			[2]36,029
Children per pediatrician					2,828			1,733

[1]Includes pediatric residents.
[2]Excludes pediatric residents (approximately 5,000 to 6,000).

SOURCES:
(1) Health Resources Administration: Interim Report of the Graduate Medical Education National Advisory Committee to the Secretary. DHEW Pub. No. (HRA) 79–633, April 1979.
(2) Bureau of Health Manpower, Health Resources Administration: A Report to the President and Congress on the Status of Health Professions Personnel in the United States. DHEW Pub. No. (HRA) 78–93, August 1978.
(3) Bureau of Health Manpower, Health Resources Administration: Supply and Distribution of Physicians and Physician Extenders. DHEW Pub. No. (HRA) 78–11, 1978.
(4) Bobula, J.: Projections of the Supply of Physicians Through the Year 2000. Center for Health Services Research and Development, American Medical Association, 1979.
(5) American Medical Association: Profile of Medical Practice in the United States, 1977, 1978, 1979.
(6) American Medical Association: Adjusted to include a portion of physicians reported by AMA as "not classified"; pediatric portion equal to 2,037 in 1975; 2,347 in 1976; 1,429 in 1977; and 1,991 in 1978.
(7) U.S. Bureau of the Census: *Current Population Reports*. Series P–25, No. 704 and No. 870, adjusted for undercount.
(8) Graduate Medical Education National Advisory Committee (GMENAC): Final Report of the Modeling Panel (Draft), August 1980.

GMENAC has adopted a needs-based approach. Unfortunately, both have serious limitations.

The Bureau of Health Professions divides present utilization into categories such as medical office, short-term hospital, and other settings. It then projects changes in utilization in each category based upon population and demographic shifts over time. Thus, changes in demand that might result from an increased number of children in the population, or from a smaller number of people with incomes below the poverty level, would be taken into account. Changes in medical practice, however, would not be considered. Hypothetical developments that could modify demand, such as the appearance of national health insurance, are included in a supplementary contingency model.

The results of the Bureau of Health Professions methods for pediatrics show the total number of pediatricians needed by 1990 to be 22,349 (table 7), a negligible increase over present levels.

In addition to the weaknesses inherent in the demand-utilization projections, the Bureau of Health Professions' projection also has serious methodological shortcomings when applied to individual specialties. Because they were designed to produce aggregate figures for all physicians, the Bureau of Health Professions' projections of utilization growth are not specialty-specific. Thus, their calculation applies utilization projections based on average demographic and economic trends across age groups to specific estimates of the number of pediatricians engaged in

TABLE 7. Bureau of Health Professions Pediatric Requirements Projections

Activity	Number of Pediatricians Engaged in This Activity 1975	Projected Utilization Growth 1975–90	Projected 1990 Manpower Requirements (Col. 1 times Col. 2)
Medical office			
General care	568	108.9	619
Pediatric care	12,061	101.1	12,194
Other care	271	111.0	301
Short-term hospital			
Outpatient care	638	95.6	610
Surgical care	49	110.9	54
Medical care	6,179	103.3	6,383
Long-term hospital			
Other care	131	110.5	145
Other settings			
Noncare activities, not elsewhere specified	1,849	110.5	2,043
Total	21,746		22,349

SOURCE: JWK International Incorporated: Evaluation of Project SOAR (Supply, Output, and Requirements). Draft report, DHEW Contract No. (HRA) 232–78–0140, 1979.

each activity. The result then is of limited usefulness for child health care.

The GMENAC approach represents a major effort to base manpower requirements on child health care needs. Their methodology has been well described by Miike of the Office of Technology Assessment (OTA):

> In the GMENAC model, population-based estimates of morbidity (biological needs) are adjusted to determine the proportion of persons with a given morbidity who are in need of physician intervention. In addition the quantity and type of preventive services appropriate for certain population subgroups are normatively estimated. Further, the model takes into account other uses such as insurance, physical examinations and visits by the 'worried well.' The result is what GMENAC terms an 'adjusted-needs' model which is used in conjunction with U.S. Census population projections to estimate the need for physician care in 1990 (*55*).

The total health care need calculated for 1990 for children less than 17 years of age was divided among pediatricians (53.5 percent), FP-GP's (25.2 percent), nonphysician practitioners (15 percent), general internists (3.7 percent), and emergency medicine specialists (2.6 percent), assuming that about 28 percent of child care will be provided by FP-GP's (*56*). Delphi panels were used to project delegation and productivity as well as to determine the patterns of care of pediatric subspecialists. The GMENAC found that approximately 36,400 general and subspecialty pediatricians (excluding residents) would be needed to meet 1990 requirements, an increase of some 60 percent over their estimate of the 1978 supply of 22,964.

Although the GMENAC calculations call for a substantial growth in the number of pediatricians and other child health physicians, the specific child health needs identified by the GMENAC methodology do not appear to justify such an increase. Analysis of the GMENAC figures shows that four specific items dominate the calculation:

- Annual checkups for children to age 16
- An extremely high rate of visits for "influenza"
- A marked increase in the number of visits for acute and chronic bronchitis
- An increase in the pediatric share of child health care

Expansion of the number of physicians based on these four areas is highly questionable, as discussed elsewhere by Budetti (*57*).

In sum, supply projections foresee a rapid expansion, even a doubling, of pediatricians between 1975 and 1990, while requirements estimates vary by well over 50 percent. The precise number of pediatricians required cannot be determined, but it appears very likely that an oversupply will shortly be at hand.

Although an oversupply of pediatricians appears likely, it may not be wise for a number of reasons to concentrate on efforts to reduce the number of medical graduates in the United States who will become pediatricians. First, requirements and supply estimates are not fully reliable and should not be used alone as a basis for policymaking in the face of evidence of present unmet needs. Second, a substantial effort on the part of Federal officials and medical educators was required to bring

about the recent growth in medical school enrollments. It is not at all clear that efforts to reverse this trend could be successful in the short term. Finally, the emphasis on primary care is still emerging and has yet to assume a dominant role in undergraduate medical education. Slowing the movement of young physicians into pediatrics might result in larger numbers of specialists in nonprimary care fields. Rather, it seems more fruitful to focus future efforts on ensuring that the new pediatricians will be appropriately trained and motivated to meet present and future unmet child health needs. The implications for training are discussed in the next section.

Future Direction of Pediatric Training

The data on child health clearly suggest the need to refocus undergraduate medical curricula and pediatric residency training so that child health physicians not only acquire skills for addressing complex disease processes but also gain a firm foundation in the routine problems of infancy and childhood, in all aspects of child growth and development, and in genetic, family, environmental, and social influences on the health of children. General pediatric training should encompass both the routine organic illnesses and problems and the psychological and social aspects of health.

This emphasis on primary care in general pediatrics need not and should not be at the expense of adequate subspecialty experience and personnel. The GMENAC has forecast a need to expand the number of pediatric subspecialists over the next decade (*56*). This projection is a panel consensus based upon admittedly limited baseline data and is clearly in need of further analysis. Its estimate may well be accurate for some subspecialties (such as gastroenterology) and not for others (such as cardiology), or it may be correct or incorrect across the board. Even if the need is substantial for a larger number of subspecialists, however, the needs can be met largely at the fellowship level. Undergraduate and residency training in pediatrics should emphasize the general training, public health awareness, and communication skills required for most child health needs. With the rapid expansion of pediatricians over the coming decade, there will be no need to stress subspecialty experiences and program development at the medical student or resident level to guarantee adequate numbers of pediatricians in most of the subspecialties. Rather, the need is clearly to develop general pediatric experience to ensure that there will not be an excessive oversupply of subspecialists.

These findings are in keeping with the conclusions of the recent report of the Task Force on Pediatric Education (*58*). The task force stressed that medical education for primary care physicians be further developed. In particular, its recent report included recommendations that pediatric experiences should emphasize human growth and development in their relationship to health and disease and increased emphasis on the biosocial aspects of pediatrics and adolescent health (*58*).

There are major barriers to accomplishing these objectives but some progress has been made. Medical schools have a difficult time financing clinical training in general care. General primary care services are poorly reimbursed relative to inpatient subspecialty services, because a higher

proportion of such services are for ambulatory care, which is usually reimbursed at relatively low rates and which infrequently requires hospitalization.

The Robert Wood Johnson Foundation has recognized the need for a shift in the emphasis of pediatric training and research and is supporting academic development programs in general pediatrics at a limited number of medical schools. The Health Resources Administration also sponsored a grant program for a number of years to fund general pediatrics and internal medicine training programs. These programs are intended to improve teaching and research in emerging areas of general pediatrics and to encourage the development of new systems of financing. If they prove successful, their example could be generalized to the majority of child care training programs.

Family Physicians—General Practitioners

Supply and Distribution

A clear strength of FP-GP's is their ability and willingness to practice in lower population areas as compared with either pediatricians or internists. More than half of all family practice graduates in the first years of FP training programs settled in towns with under 25,000 populations, and that trend has persisted through recent years (*59*). In fact, nearly one-third of recent family practice graduates are moving to areas that are more than 25 miles from medium-sized cities. As noted by Frey in a recent editorial,

> This may be in part due to the notable lack of success of the pediatrician/internist model of primary care to be able to meet the dual needs of coverage and economic viability in small towns. It is easy for three family physicians to provide coverage, hence time off, and to make a living, while any combination of two internists and a pediatrician or the reverse provides neither coverage nor a comfortable living (*60*).

The distribution of family physicians and general practitioners is in marked contrast to that of pediatricians, who are largely concentrated in metropolitan areas (table 8). Since more than one-fourth of the U.S. population still resides in nonmetropolitan areas, the implication is clear that family physicians and general practitioners will be the main source of physician care for children in less populated areas unless current residence patterns of pediatricians change significantly.

The supply of family physicians and general practitioners is now beginning to increase. For a number of years the disappearance of general practitioners was not offset by the rate of training of family physicians. Between 1963 and 1975 the total number of FP-GP's fell from 34.4 per 100,000 population to 25.0 (*61*). In contrast, GMENAC now projects a large increase in FP-GP's between 1978 and 1990 (*56*), sufficient to return the figure to 34.5 per 100,000 population.

The FP-GP's now provide over 30 percent of medical care to children under age 21, but their share declined in recent years as their numbers fell (*4, 5*). The FP-GP share of child health visits may well rise as the supply of

TABLE 8. Estimated Percentage and Number of Physicians in Each County Size, by Specialty, 1977

County Demography (U.S. Population)	Pediatrics	Family Physicians	General Practice
	Estimated percentage		
Nonmetropolitan (27)	12	28.9	34.0
Metropolitan (73)			
Population			
50,000–499,999	19.4	24.3	29.1
500,000–999,999	15.7	11.7	9.6
1,000,000 +	52.9	35.1	27.3
	Estimated number		
Nonmetropolitan (57,802)	2,349	2,654	13,750
Metropolitan (158,549)			
Population:			
50,000–49,999	3,378	2,233	11,783
500,000–999,999	3,064	1,073	3,875
1,000,000	10,328	3,219	11,046

SOURCES: Mendenhall R. C.: Pediatrics, Family Practice and General Practice Study Reports. University of Southern California, Division of Research in Medical Education, 1978; U.S. Bureau of the Census: Statistical Abstract of the United States, 1979, Table 17.

FP-GP's increases. One of the most important determinants of the proportion of early childhood visits in an FP-GP practice may be the availability of obstetric services (*62*). Because many of the new FP-GP's will be young family physicians who tend to see a higher proportion of children than older general practitioners (*62, 63*), the division of child care among the specialties may well change again.

Training and Appropriate Use

Because of their focus on general medical care, many family practice medical programs already address the issues raised with regard to improved pediatric training. Family practice physicians generally spend 6 months of their 3 years of residency on formal pediatric services. In addition, increasing portions of the entire training period are spent in continuity clinics that include children. This exposes the FP residents to the developmental processes of individual patients and is actually a large part of their overall pediatric experience. Family practice residency programs are also intended to include an extensive behavioral component. Finally, the obstetric and gynecology training that family practice residents have, as well as much of their training in adult medicine, provides them with the skills necessary for the health care needs of older adolescents.

Discussions of child health manpower tend to equate pediatricians and family physicians. There are differences, however, that are reflected in present patterns of care. Pediatricians clearly have more extensive training in the complex medical problems of infancy and early childhood and can

provide secondary care for a wide spectrum of disorders. There are at least two areas in which FP-GP's have advantages over pediatricians, however. The first is the geographic flexibility discussed above. Based upon the health needs and utilization patterns of children, it also appears that FP-GP's presently are better suited to handle the problems of older adolescents, particularly those relating to family planning and prenatal care, than many pediatricians. The number one reason for office visits among those 15–21 years old is routine pregnancy examination, accounting for over 10 percent of visits in that age group (table 3). Gynecological exams, vaginal discharge, menstrual disorders, and family planning services account for another 7 percent. Presently, most general pediatricians, unlike FP-GP's or adolescent medicine specialists, are not appropriately trained for this significant aspect of medical care for young adults. In addition, typical pediatric offices are probably not the most suitable place for young people to ask questions about contraception.

The distribution of child health visits among specialists by age of child reflects the relative advantages of FP-GP's for older children. The FP-GP's see more than nine times as many youths aged 15–21 years than are seen by pediatricians (*4*).

Nurse Practitioners and Other New Professionals[5]

Summary

Programs to train nurse practitioners and other new health care providers have been growing rapidly in recent years. Between 1980 and 1990, the number of midlevel practitioners will more than double and total 56,000 by 1990. The development of these new professions was encouraged for three general reasons. First, it was hoped that they might help reduce the costs of medical care. Although some savings result when new professionals are used, the total costs of care to the patient apparently often are not reduced (*64*). Second, it was widely believed that they were well suited to provide psychosocial and preventive care that physicians were not always providing. Depending upon the practice setting in which they are employed, new professionals do indeed offer such important but traditionally neglected services (*65*). Finally, it has been asserted that these professionals are competent and willing to assume primary responsibility for health services in rural and underserved areas. This attribute also appears to have been borne out in recent years (*66*).

These favorable characteristics of nurse practitioners and other new providers may not guarantee their professional viability in the future, however. Rapid expansion of the number of physicians expected in the next decade may lead more physicians to practice in undesirable or otherwise underserved areas. Moreover, pressure is increasing to expand the psychosocial, behavioral, and public health training of pediatricians and family practice residents. A parallel development is the movement to

[5]For a detailed discussion of nurse practitioners and other "new professionals," see Gloria Ruby and Katherine B. Nuckolls in this volume.

provide adequate insurance reimbursement for such services. These combined factors could bring into serious question the prospects for future employment of new health professionals.

Costs and Productivity

There has been a great deal of interest in whether the new professionals increase physician productivity, reduce overall costs of care, and improve the quality and appropriateness of care. None of these questions is easy to answer because the impact of the new professionals is determined by the way individual physicians structure their practices. The practitioner may be used to expedite physician services, to provide services previously not offered, or to enable the physician to spend more time with patients requiring special skills. Fundamentally, the practitioner provides the physician with new options.

In general, the use of new professionals tends to increase access and quality of care, but may not lower short-term health care costs or reduce costs to the consumer. The Congressional Budget Office concluded that new professionals can improve the cost effectiveness of medical practice because of their relatively lower salaries (*67*). Productivity is greatest when each patient is given an appointment with either the physician or the new professional and the physician participates only at the request of the practitioner. Although savings from increased productivity are not necessarily reflected in patient charges, some overall savings may result from the great difference in educational expenses. On the average, physicians are at least five to seven times more costly to train than nurse practitioners.

The real social benefit of using the new practitioners may well be the increased breadth of care that they can provide by addressing preventive and psychosocial aspects of care that could affect long-term health outcomes. There is considerable evidence that partnerships between physicians and nurse practitioners provide more comprehensive care for children than either of them working alone (*68*). This complementarity, and not simply reduced costs, may be the most important benefit if nurse practitioners and physicians practice together to a significant degree in the future.

Psychosocial and Preventive Care

As one model for the more effective integration of the psychosocial, preventive, and family-related aspects of care with more traditional medicine, the close collaboration of physicians with the new health professionals, among them nurse practitioners, shows great promise. Many aspects of preventive care and community health and other components of primary care are major components of nursing. Today the counseling and education services required for preventive care require training in psychology and other social sciences that are already a part of nursing curricula and experience. Moreover, the kinds of services associated with preventive care, health maintenance, and patient counsel-

ing can be time-consuming and inadequately reimbursed under current health insurance schemes. Physicians often are reluctant to provide such services partly because of traditional physician training and partly because of the lack of insurance reimbursement. Studies have shown that nurses trained to provide such services can free the physician from much of this responsibility and do so in a cost-effective manner (*67*).

New practitioners can also perform the health maintenance services and case management of chronically ill or handicapped children. The needs of such children are complex and may not adequately be met by the current health delivery system. The multiple needs of an individual patient may require the services of a variety of medical specialists, but communication among these specialists may be inadequate. It has been demonstrated that the specialist nurse practitioner is qualified and well suited to coordinate services of all kinds for the handicapped child either in or out of a hospital (*69*).

Underserved Areas

Nurse practitioners now account for more than half of all midlevel professionals and are more likely than physician's assistants to work with children (*67*). If current trends continue, nurse practitioners and nurse midwives will probably be the dominant new maternal and child health professionals in the future. A study published in 1978 reported that 75 percent of nurse practitioners were in primary care and more than one-third worked in the inner city. About 75 percent of the nurse midwives were in institutional settings and almost 50 percent in hospitals. The 50 percent who work in large cities are working in hospitals, health maintenance organizations, or private practices, and those in smaller cities or towns of less than 200,000 are working in public health departments, the military, or private practices. Evidence suggests that nurse practitioners improve access to high quality medical care for residents of communities with relatively few physicians.

At present, policymakers are ambivalent about how aggressively to support the training and use of the new professionals for improving care in areas with limited health care resources. Given the expanding supply of physicians and concerns about cost, some of the earlier incentives to encourage the training of new professionals have dissipated. Moreover, there are a number of unresolved issues that are particularly important in determining the potential role of new professionals in meeting the needs of underserved populations. A deep-rooted controversy remains, which must be resolved, about the degree of physician supervision required by the new professionals in such areas as the prescribing of drugs. Whether and at what level to pay new professionals directly for their services remains substantially unresolved, although some public and private direct reimbursement does exist. Another question is whether, in an era when team practice is being encouraged, the further development of another form of solo practice should be encouraged. At a minimum, it appears that the key role traditionally played by nurses to complement and supplement physician services in underserved rural areas will continue.

Psychologists and Educational Specialists

The role of psychologists, educational specialists, and others trained in behavioral sciences and learning disabilities is important both in terms of ascertaining the degree of unmet needs among youth and the extent to which physicians and new practitioners will be required to deal with behavioral problems and learning disabilities. As noted previously, the data show that only a small minority of medical care is presently devoted to youths with behavioral and learning problems. Although pediatricians and other primary care providers report a lack of training in these areas (*58*), the extent to which other providers are meeting these needs is a major factor in determining how much medical training and practice should be focused on behavioral and learning problems. In a team concept of medical practice, the services provided by psychologists and educational specialists are a basic part of meeting child health care needs.

In 1978, there were approximately 60,000 Ph.D.-level psychologists (*70*).[6, 7] These include psychologists in three categories: school psychologists, clinical psychologists, and health or behavioral psychologists. Only 25,510, or 40 percent, are certified and licensed psychologists who provide direct patient care services. School psychologists include approximately 3,000 persons at the Ph.D. level and 20,000 at the Masters degree level.[6] Health or behavioral psychology, a relatively new and rapidly growing field, increased from 1,000 in 1979 to 2,000 Ph.D.-level psychologists in 1980.

Federal legislation in the Education for All Handicapped Children Act, Public Law 94–142, requiring all public schools to provide education to handicapped children, has stimulated a substantial increase in the number of psychologists dealing with child problems. To meet the requirements of the legislation, the number of school psychologists will have to be doubled (*71*). Health or behavioral psychologists are estimated to increase by another 1,000 in 1981, bringing the number to 3,000. Approximately one-half of these psychologists are in pediatrics. Some are currently in partnership or group practice with pediatricians.

Educational specialists—both regular classroom teachers as well as specialized staff persons—provide special instruction or assistance to pupils with learning disabilities, emotional disturbances, and mental retardation. The results of a nationwide public school survey show that learning disabilities are served by an estimated 123,000 professionals, approximately one-third of whom are specialists including school psychologists, counselors, reading and language specialists, speech and hearing specialists, and others. For the emotionally disturbed, there were approximately 74,100 professionals (*72*). An estimated 102,500 professionals provided instruction for the mentally retarded (*72*).

The distribution of services provided for these three mental health problems varies. The mentally retarded are offered services in the majority

[6]Personal communication, G. R. VandenBos, American Psychological Association, August 1980.

[7]This figure represents an estimate based on 40 percent of Ph.D. psychologists being health service providers (certified and licensed)—25,510:40 equals 60,000 Ph.D. psychologists.

of the schools. Instruction and assistance for learning disabilities are found in less than half of the public schools (*73*). In addition, an even greater number of educational specialists provide services to the large group of physically handicapped pupils.

In summary, psychologists and educational specialists play a key role in child health care, particularly in areas of unmet need. Further study is needed not only on the need for an increased supply of these professionals but also on their locations and patterns of practice.

CONCLUSION: STRATEGIES FOR IMPROVING CHILD HEALTH PERSONNEL TRAINING, DISTRIBUTION, AND ORGANIZATION

Health Care Needs of Children

Strategies for meeting the health care needs of children in the future should not focus on increasing the supply of professionals. Rather, the new strategies should be designed to serve the needs that are presently not being met. These include certain population groups as well as specific health conditions that are inadequately addressed. Those with continuing need for the entire spectrum of health services include children in rural and central urban areas, the poor, blacks, and adolescents.

The needs of rural children may well be met if present trends and programs continue. Family physicians, general practitioners, and nurse practitioners have all demonstrated a willingness to provide care in many rural areas and their financial viability in such areas. In the remaining underserved areas, the National Health Service Corps (NHSC) should provide the necessary care. In addition, as their supply greatly increases, pediatricians may develop innovative practice arrangements that could serve the needs of children in some rural areas.

Meeting the needs of the underserved children in central cities may be even more complex than meeting the needs of rural children. A major effort to increase access to care in central urban areas has been underway for some time. Continued expansion of Medicaid coverage and payment levels and programs to increase the number of blacks and other minorities in medical schools could help address shortages in these areas. Finally, the NHSC can also be expected to play a prominent role in addressing these needs.

Adolescents present a complex body of unmet child health care needs. To address adolescent needs for care with regard to sexuality and family planning, family physicians–general practitioners, and nurse practitioners will continue to play a prominent role. In addition, pediatric education should be expanded to include training in childhood and adolescent sexuality and family planning so that pediatricians can provide the services necessary to deal with these aspects of care.

The problems associated with alcohol and drug abuse among youths will necessitate increasing the number of programs of a variety of health and social agencies, the schools, and other institutions that deal with

adolescents. Moreover, physicians and other health care professionals will need more extensive training in both the preventive and medical aspects of reducing alcohol and drug abuse, specifically among the youth.

There are many unmet mental health problems in children, particularly including a high incidence of learning, language, and behavioral disorders. These require several different approaches. Psychologists and others must be available in large numbers in the schools. Medical care professionals, particularly pediatricians and family practitioners, must have more extensive training in the diagnosis and management of such problems and also in dealing with the extensive network of health care providers necessary to adequately correct many of these disorders.

In addition to children with mental health problems, children with other chronic disabilities constitute a large population that needs more extensive attention from the health care system. Again, the need is for additional training in the problems of chronically disabled and handicapped children for all health care personnel, along with the development of the team concept of social and medical services necessary to address these serious problems.

The Role of New Health Care Professionals

Although the number of nurse practitioners has been growing in the past decade and pediatricians have led the way in incorporating them into medical practices, there have been obstacles to the full integration of these professionals into the delivery of primary care. Some barriers such as those related to patient acceptance and State licensure restrictions have eased although not disappeared. Others, including reimbursement and physician reluctance, remain. Now, given the greatly increased number of physicians resulting from more than a decade of policies to expand medical school enrollments, physician resistance to delegating responsibilities for patient care to other practitioners may increase rather than diminish. Only in settings with fixed budgets, such as health maintenance organizations, will there be the incentive to hire health professionals who can provide particular services in the most cost-effective manner. Continuing employment opportunities for nurse practitioners may become scarce.

In addition to issues of cost containment and despite the increased number of pediatricians, a further and most important reason for continuing to support the training of new health professionals is related to the type of education and training received by physicians. Medical education, residency programs, and health service reimbursement systems may continue to establish patterns that serve as barriers to meeting many child health needs. If so, nurse practitioners and other health care professionals should be available to provide the services that they do well, i.e., primary care in underserved rural and central metropolitan areas and psychosocial and preventive services of general medical care.

To realize the potential of the new professionals in the face of expanded physician supply policymakers, physicians and communities would have to create innovative ways to use these individuals. For example, States that limit the practice of nurse practitioners, physician's assistants, and other new health professionals might adopt laws that allow them to practice in underserved areas under physician supervision. To increase access to health care through new health professionals will require adequate funding of training programs and the placing of graduates in underserved areas, expanding the number of new practitioners in the NHSC, and extending financial reimbursement to cover the costs of their services.

Team Modes of Practice in Primary Care

Implicit in the notion of the primary care unit is the team made up of physicians, nurses, dentists, nutritionists, counselors, social workers, and others. It is unrealistic to assume that physicians can have adequate training and experience in all of the fields that bear upon the personal health and behavior of youths. Likewise, it is unwise to encourage patterns of practice that isolate general pediatricians, family physicians, obstetricians, and others from physicians and other health professionals whose expertise complements their own.

Numerous attempts have been made to define the desired attributes of a primary care team. Teamwork in primary care can have many variations. Single, large organized settings may include a broad array of health-related professionals, offering the conveniences of collaboration and proximity to patients. On the other hand, the office-based physician, even in solo practice, may greatly enhance the quality of care by being closely linked to various backup and support services. The team concept should therefore be regarded principally as an attitude that should be firmly established in training rather than as requiring a particular organizational construct for the provision of services.

Among pediatricians, there appears to be an implied recognition of the advantages of teamwork in the present trend to avoid solo practice and instead to work in small groups. The emerging private practice pattern in pediatrics is the group practice. Although the reason for such an arrangement might be financial or might be to gain the advantages of group consultation, the pediatricians in such groups are often working in conjunction with pediatric nurse practitioners or associates and delegating certain patient care activities (*67*). Pediatricians usually have close links to teaching centers, which further improve patient access to the variety of services offered in more complex medical care facilities. Such group practice and pediatric regionalization should be endorsed, along with other modes of organized practice, because they strengthen the quality of care. The major limitation of such arrangements is their limited financial viability in remote rural areas. This suggests that such group practices

should evolve in middle-sized towns either as backup centers for family practitioners and other health care providers or as central units of rural satellite clinics, which are staffed by the centers on a rotating basis.

Community Health Care

The changing health needs of both children and adults have led to a call for a second public health revolution in which preventive health and primary care would replace the present disease-oriented system of excessive specialization and high technology. The arguments supporting this reorientation have been based not only on epidemiological evidence but also on access, quality of care, and economic factors (*12*).

Children are now experiencing more behavioral problems without a clear somatic basis. Many of these are related to poor physical or social environments, the changing role and structure of the family, and other factors related to health but not strictly to medicine. To address these needs, increasing consideration is being given to ideas such as team modes of health care involving nurse practitioners, psychologists, and other professionals; the long-term effects of childhood illness on subsequent health; the value of childhood indicators of risk and serious adult illness; and the promotion of nutrition and exercise as a means to prevent future health problems. In a comprehensive approach, these and other concerns related to the "new pediatrics" and community health would be incorporated into the selection and training of health care workers as well as into practice and reimbursement innovations in health care.

The implications of the community health approach go beyond changes in the training of physicians. Additional health education programs would be implemented aimed at different youth groups and specific problem areas such as drinking and smoking through the use of media, schools, health care settings, religious groups, and other community organizations. For example, a community health approach to alcohol abuse among young people was developed in Somerville, Massachusetts. The CASPAR alcohol education program began in 1972 with a school community steering committee to identify youths' problems related to alcohol abuse. To confront these needs, the CASPAR program incorporated training for peers and for teachers, offered an alcohol education curriculum for grades 3–12, and provided an outreach effort for youth problem drinkers and children of alcoholic parents.

National Health Service Corps

Just as there will be a significant increase in primary care physicians in the 1980's, so there will be a major increase in numbers of NHSC members (the majority being physicians) in various rural and central city primary care settings. At present, a total of 971 physicians are deployed by NHSC, 534 FP-GP's, including 160 pediatricians, and 18 obste-

tricians.[8] These are complemented by 257 nurse practitioners and nurse midwives. By 1985, total numbers of primary care physicians and new professionals will increase substantially. Until now, potential placements for NHSC personnel have far exceeded numbers of Corps participants. As the character of the program changes from a small volunteer program to a vastly expanded service-connected scholarship program, issues of appropriate site designation and placement become more complex. Support for NHSC personnel by other physicians is crucial both during their medical training and once they are in practice. Adequate support will require that pediatricians and other primary care physicians provide NHSC personnel with appropriate preparation for their Corps practice and participate fully in their placement and backup.

REFERENCES

(1) U.S. Bureau of the Census. *Statistical Abstract of the United States: 1979*, 100th ed. Washington, D.C., 1979.

(2) U.S. Bureau of the Census. *Estimates of the Population of the United States by Age, Sex, and Race: 1976–1979*. Series P–25, No. 870, January 1980.

(3) U.S. Bureau of the Census. *Projections of the Population of the United States: 1977–2050*. Series P–25, No. 704, July 1977.

(4) Ezzati, T. M. "Ambulatory Care Utilization Patterns of Children and Young Adults." *Vital and Health Statistics. National Ambulatory Medical Care Survey 1975*. Public Health Service, Hyattsville, Md., Series 13, No. 39, DHEW (PHS) 78–1790, 1978.

(5) National Center for Health Statistics. *Health United States, 1979*. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 80–1232, 1980.

(6) Kovar, M. G. and D. Meny. Special tabulations prepared for the Select Panel for the Promotion of Child Health, National Center for Health Statistics. In *Better Health for Our Children: A National Strategy*, Vol. III, Tables 26, 27, 28, 30. Washington, D.C.: U.S. Government Printing Office, 1981.

(7) Aday, L. A., R. Andersen, and G. V. Fleming. *Health Care in the United States*. Beverly Hills: Sage Publishers, 1980.

(8) Kovar, M. G. "Adolescent Health Status and Health-Related Behavior." In *Adolescent Behavior and Health*. Institute of Medicine, National Academy of Science, Washington, D.C., 1978.

(9) Kovar, M. G. and D. Meny. Special tabulations prepared for the Select Panel for the Promotion of Child Health, National Center for Health Statistics. In *Better Health for Our Children: A National Strategy*, Vol. III, Table 28. Washington, D.C.: U.S. Government Printing Office, 1981.

(10) Hein, K. and M. I. Cohen. Unpublished proposal to the Robert Wood Johnson Foundation. Division of Adolescent Medicine, Montefiore Hospital and Medical Center, Bronx, New York.

(11) Cohen, M. I., I. F. Litt, K. Schonberg, A. J. Sheehy, F. Daum, and K. Hein. "Perspectives on Adolescent Medicine: Concepts and Program Design." *Acta Paediatrica Scandinavica* 256: (Supplement) 9–16, 1976.

(12) U.S. Department of Health, Education, and Welfare, Public Health Service. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention, 1979*, p. 48. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79–55071, 1979.

(13) Brunswick, A. F. and E. Josephson. "Adolescent Health in Harlem." *American Journal of Public Health* (Supplement) pp. 1–62, October 1972.

(14) Hein, K., M. T. Cohen, I. F. Litt, S. K. Schonberg, M. R. Meyer, A. Marks, and A. J. Sheehy. "Juvenile Detention: Another Boundary Issue for Physicians." *Pediatrics* 66: 239–245, 1980.

(15) Aday, L. A., R. Andersen, and G. V. Fleming. *Health Care in the United States*, p. 244. Beverly Hills: Sage Publishers, 1980.

[8] Personal communication, M. Heningburg, Bureau of Community Health Services, Program Officer for National Health Services Corps, August 1980.

(16) National Center for Health Statistics. *Monthly Vital Statistics Report, Advance Report on Natality.* Vol. 29, No. 1, Supplement, DHEW Publication Number (PHS) 80-1120, April 28, 1980.
(17) Division of Vital Statistics. National Center for Health Statistics, 357.
(18) Klerman, L. V. "Adolescents: Health Status and Needed Services." In this report.
(19) Budetti, P., P. McManus, N. Barrand, and L. Heinen. "Costs and Effectiveness of Neonatal Intensive Care." In *The Implications of Cost-Effectiveness Analysis of Medical Technology/Background Paper #2: Case Studies of Medical Technologies.* Office of Technology Assessment, Congress of the United States. Washington, D.C.: U.S. Government Printing Office, 1980.
(20) National Center for Health Statistics. "Teenage Childbearing: United States, 1966–75." *Monthly Vital Statistics Report, Natality Statistics.* Vol. 26, No. 5, Supplement, DHEW Publication Number (PHS) 77-1120, September 8, 1977.
(21) U.S. Department of Health, Education, and Welfare, Public Health Service. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention, 1979,* p. 49. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79-55071, 1979.
(22) U.S. Department of Health, Education, and Welfare, Public Health Service. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention, 1979,* p. 23. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79-55071, 1979.
(23) Kessel, S. S., J. P. Rooks, and I. Cushner. "A Child's Beginning." In this report.
(24) Rachal, J. V. *et al. A National Study of Adolescent Drinking Behavior, Attitudes and Correlates.* Research Triangle Park, N.C.: Research Triangle Institute, 1975.
(25) Kassebaum, P. and P. McManus. *The King County ESD Alcohol Education Curriculum: Replication Workbook,* p. 16. National Institute on Alcohol Abuse and Alcoholism, Rockville, Md., 1977.
(26) Blane, H. and L. Hewitt. *Alcohol and Youth: An Analysis of the Literature, 1960-1975.* National Institute on Alcohol Abuse and Alcoholism, Rockville, Md., ADM-281-75-0026, 1976.
(27) U.S. Department of Health, Education, and Welfare, Public Health Service. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention, 1979,* p. 5–6. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79-55071, 1979.
(28) U.S. Department of Health, Education, and Welfare, Public Health Service. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention, 1979,* p. 5–7. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79-55071, 1979.
(29) Allen, Booz, and Hamilton. *An Assessment of the Needs of and Resources for Children of Alcoholic Parents,* p. 14. National Institute on Alcohol Abuse and Alcoholism, Rockville, Md., 1974.
(30) National Institute on Alcohol Abuse and Alcoholism. *Guide to Alcohol Programs for Youth.* National Institute on Alcohol Abuse and Alcoholism, Rockville, Md., in press.
(31) Social Research Group. *The National Survey on Drug Abuse.* National Institute on Drug Abuse, Rockville, Md., June 1980.
(32) Johnston, L., J. Bachman, and P. O'Malley. *Highlights from Drugs and the Class of '78: Behaviors, Attitudes, and Recent National Trends.* National Institute on Drug Abuse, Rockville, Md., 1980.
(33) Burns, B., J. Burke, and D. Regier. "Considerations Related to a Child-Oriented Psychosocial Classification System for Primary Health Care." Paper presented at the Workshop on Psychosocial Factors Affecting Health: Assessment, Classification and Utilization, Bellagio, Italy, November 1979; revised January 1980.
(34) Rosen, B. M. "The Mental Health Delivery System and Services to Children." In *Handbook of Child Psychiatry.* J. D. Noshpitz, ed. New York: Basic Books, in press.
(35) Special tabulations prepared by the Survey and Reports Branch, Division of Biometry Epidemiology, National Institute on Mental Health (unpublished). Introduction to tabular material presented on Children Adolescents and Young Adults (Age Groups Under 25 Years) Under Care in Mental Health Treatment Facilities/Services.
(36) Regier, D. A., I. D. Goldberg, and C. A. Taube. "The Defacto U.S. Mental Health Services System." *Archives of General Psychiatry* 35: 685–693, June 1978.
(37) Robbins, L. N. "Mental Disorders in Children." Prepared for the President's Commission on Mental Health, February 1978.
(38) Goldberg, I. D. and D. A. Regier, eds. "Utilization of Health and Mental Health Outpatient Services in Four Organized Health Care Settings." (ADM) 78-859, in press.
(39) Bailey, V., P. Graham, and D. Boniface. "How Much Child Psychiatry Does a General Practitioner Do?" *Journal of the Royal College of General Practitioners* 28: 621–626, 1978.

(40) Goldberg, I. D., D. A. Regier, T. K. McInerny, *et al.* "The Role of the Pediatrician in the Delivery of Mental Health Services to Children." *Pediatrics 63:* 898–909, 1979.

(41) Starfield, B., E. Gross, M. Wood, *et al.* "Psychosocial and Psychosomatic Diagnoses in Primary Care of Children." *Pediatrics* 66: 159–167, 1980.

(42) U.S. Department of Health, Education, and Welfare, Public Health Service. *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention, 1979,* p. 50, 51. Washington, D.C.: U.S. Government Printing Office, DHEW Publication Number (PHS) 79–55071, 1979.

(43) National Center for Health Statistics. *The National Ambulatory Medical Care Survey, 1977,* Summary, Table 13, p. 27. Public Health Service, Hyattsville, Md., DHEW Publication Number (PHS) 80–1975, April 1980.

(44) National Center for Health Statistics. *Physician Visits: Volume and Interval Since Last Visit-U.S., 1975,* Table 23, p. 36. Public Health Service, Hyattsville, Md., DHEW Publication Number (PHS) 79–1556, April 1979.

(45) Ireys, H. T. "Health Care for Chronically Disabled Children and Their Families." In this report.

(46) Ireys, H. T. "Health Care for Chronically Disabled Children and Their Families," Appendix. In this report.

(47) National Center for Health Statistics. *Current Estimates from the Health Interview Survey: United States, 1977,* Table 14, p. 24. Series 10, No. 126. DHEW Publication Number (PHS) 78–1554, September 1978.

(48) U.S. Bureau of the Census. *Current Population Reports.* Series T–23, No. 69, June 1978.

(49) National Center for Health Statistics. *Physician Visits—Volume and Interval Since Last Visit: United States, 1975,* Table 15, p. 29. Series 10, No. 128. DHEW Publication Number (PHS) 79–1556, April 1979.

(50) American Medical Association. *Journal of the American Medical Association,* Vol. 240, Table 6, 1978; plus telephone update.

(51) Health Resources Administration. *Interim Report of the Graduate Medical Education National Advisory Committee to the Secretary, DHEW.* Public Health Service, Publication Number (HRA) 79–633, April 1979.

(52) Bureau of Health Manpower. *Review of Health Manpower Population Requirements Standards.* Public Health Service, Publication Number (HRA) 77–22, 1977.

(53) Roddy, P. C. "Need-Based Requirements for Primary Care Physicians." *Journal of the American Medical Association* 243: 355–358, 1980.

(54) Schonfeld, K. H., J. F. Heston, and I. S. Falk. "Numbers of Physicians Required for Primary Medical Care." *New England Journal of Medicine* 286: 571–576, 1972.

(55) Miike, L. *Forecasts of Physician Supply and Requirements.* Office of Technology Assessment, Congress of the United States, April 1980.

(56) Graduate Medical Education National Advisory Committee. "Final Report of the Modeling Panel" (Draft), August 1980.

(57) Budetti, P. "Pediatric Manpower: Supply Projections and Requirements" (Draft). Health Policy Program, University of California, San Francisco, July 1980.

(58) Task Force on Pediatric Education. *The Future of Pediatric Education.* American Academy of Pediatrics, Evanston, Ill., 1978.

(59) American Academy of Family Physicians. *Annual Survey of Residency Graduates.* American Academy of Family Physicians, Kansas City. Publication 155 D., 1978; 1979 update (Mimeo).

(60) Frey, J. J. "Where Shall We Live and for Whom Shall We Care?" *Family Practice Forum Journal of Family Practice* 10: 151–152, 1980.

(61) Bureau of Health Manpower, Health Resources Administration. *A Report to the President and Congress on the Status of Health Professions Personnel in the United States.* Public Health Service, Publication Number (HRA) 79–93, August 1978.

(62) Frey, J. J. and C. A. Rice. "Family Practice in Massachusetts: A Comparison of Residency-Trained Family Physicians with the General Practitioner Experience of 1967–1968." *Journal of Family Practice* 10: 663–671, 1980.

(63) Family Practice and General Practice Study Reports, University of Southern California Manpower Studies. July and August, 1978.

(64) LeRoy, L. *The Cost Effectiveness of Nurse Practitioners* (Draft). Health Policy Program, University of California, San Francisco. Prepared for the Office of Technology Assessment, Congress of the United States, 1980.

(65) Glen, J. K. and J. Goldman. "Strategies for Productivity with Physician Extenders," *Western Journal of Medicine* 124: 249–257, 1976.

(66) Sultz, H. A., M. Zielezny, and L. Kinyon. *Longitudinal Study of Nurse Practitioners: Phase I.* U.S. Department of Health, Education and Welfare, Washington, D.C., DHEW Publication Number 76-43, March 1976.

(67) Congress of the United States, Congressional Budget Office. *Physician Extenders: Their Current and Future Role in Medical Care Delivery.* Washington, D.C.: U.S. Government Printing Office, April 1979.

(68) Ruby, G. "New Health Professionals in Child and Maternal Health." In this report.

(69) Nuckolls, K. B. "Background Paper on Nursing." In this report.

(70) Mills, D. H., A. S. Wellner, and G. R. VandenBos "The National Register Survey: The First Comprehensive Study on All Licensed/Certified Psychologists." In *Psychology and National Health Insurance: A Sourcebook.* C. A. Keisler, N. A. Cummings, G. R. VandenBos, eds. American Psychological Association, Washington, D.C., 1979.

(71) VandenBos, G. A., R. S. Nelson, J. Stapp, S. Olmedo, D. Coates, and W. Batcheoor. "A Service Need-Based Approach to the Projection of Mental Health Personnel Needs." An American Psychological Association report to the National Institute of Mental Health (Memo). September 27, 1979.

(72) Metz, A. S. and H. L. Cramer. *Professional Staff for the Handicapped in Local Public Schools,* p. 2. U.S. Department of Health, Education and Welfare, Washington, D.C., (OE) 74-214, Spring 1970.

(73) Metz, A. S. and H. L. Cramer. *Professional Staff for the Handicapped in Local Public Schools,* p. 15. U.S. Department of Health, Education and Welfare, Washington, D.C., (OE) 74-214, Spring 1970.

NEW HEALTH PROFESSIONALS IN CHILD AND MATERNAL HEALTH

by
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INTRODUCTION

If the health needs of children and women of childbearing age are to be met effectively, it is essential to have appropriate manpower in sufficient supply and in convenient locations. A variety of child and maternal health services, including medical, nursing, and social services are crucial in the promotion of child health; many of these services have traditionally been the responsibility of physicians, but can be provided by alternate manpower.

Recently, the number of other health practitioners has increased. This group includes formally trained nurse midwives, nurse practitioners (particularly in pediatric nurse and school health) and physicians' assistants (especially child health associates). Considerable evidence demonstrates that these "new health professionals" are effective in providing some of the maternal and child health services usually considered to be the province of the physician. Although professional nurse midwifery was introduced in this country in 1925, (*1*) it has probably undergone more change since 1972 than during any other period of its history, and so it will be included in this rubric.[1]

The complex issue of appropriate manpower is especially timely now because of new health manpower legislation and the recurring possibility of the enactment of national health insurance. The debate is confounded by the current intense concern, both governmental and private, with the escalating costs of health care. The quality of care and the accessibility of suitable services to children and women of childbearing age may be tempered by budgetary considerations.

A comprehensive examination of new health professionals who provide maternal and child health services is needed in order to determine whether they are effective. For the purposes of this paper it is presumed that the

[1]In this paper nurse midwives are defined as licensed nurses who have undergone a professional midwifery program; nurse practitioners are defined as graduates of an approved continuing or graduate education program to train registered nurses to become nurse practitioners; and physicians' assistants are either graduates of approved physicians' assistant programs or other persons certified as physicians' assistants. The lay midwife, who represents another nonprofessional source of maternal care, will not be discussed.*

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new health professional is working in conjunction with a physician. The critical issue of independent practice would require a philosophical analysis of the place of the physician in American medicine.

HISTORICAL PERSPECTIVE

The importance of an adequate supply of practitioners to increase the availability of health care for children and women of childbearing age received keen public and private attention in the 1960's. Despite tremendous achievements in scientific research and the application of new discoveries to medicine, inadequate medical care and unmet health needs existed in some areas and among some populations. For example, profound disparities existed in infant mortality rates between the United States and other industrial countries, among States, and between the white and nonwhite populations of this country. It was estimated that between 45,000 and 50,000 infants died in the first month of life due to the lack of proper care (*2*).

The Federal Government perceived the cause of these deaths to be a shortage in the supply of health professional manpower—especially of physicians. The number of physicians per 100,000 people had declined from 119.8 in 1931 to 102.7 in 1958 (*3*). Consequently, Federal policy supported health manpower training. In 1963 Congress enacted the Health Professions Education Assistance Act (*4*).

The problem, however, was more complex. In addition to the inadequate number of physicians and other health professionals, the changing nature of medical practice and an increased need and demand for health care were responsible for the shortage of manpower. Among the varied influences on medical practice and medical care were the demand for advanced training by physicians returning from World War II, generous government investment in research and technology, and the initiation of new specialty training programs in many hospitals. Consequently, the focus of graduate medical education shifted to the training of medical and surgical specialists and the number of physicians trained to provide the majority of care for an individual or a family was thereby reduced. Biomedical research and its application prolonged life and saved many lives previously considered beyond assistance. As a result peoples' estimation of the capabilities of medicine rose and the demand for medical services increased.

Complex care increased the cost of care and promoted the use of health insurance. For the most part health insurance covered, and still covers, inhospital services and surgery, which encourages the provision of specialty services. The lack of coverage for primary care services not only raises a financial barrier to their use, but is believed to discourage physicians from entering and remaining in primary care practice (*5*).

Although the emphasis on specialization produced pediatricians and obstetricians to provide child and maternal health services, it did not offset the decline in the number of general practitioners. Such physicians had provided most of the care to children and women of childbearing age

in low income and geographically isolated populations (6). By 1965, the number of obstetricians per 10,000 total births in States with low per capita income was two-thirds of the national average; total physicians per 100,000 population and pediatricians per 10,000 children under fifteen in States with low per capita income were about one-third lower than the respective national ratios (*7*).

The mounting difficulties of providing primary care led to experiments in increasing physicians' capacities to provide patient care. One proposal was a system for training health personnel to assume some of the duties of physicians without long and expensive training periods. Although organized medicine did not openly recognize the practice, individual physicians had informally delegated medical tasks to other health personnel for years (*8*).

In 1965, formal training programs for two new types of health personnel, nurse practitioners and physicians' assistants, were started. Both professions were launched in the same year under sponsorship from the private sector and were constituted to provide some services previously performed by physicians. Their training and their professional philosophies, however, differ markedly. Nurse practitioners are registered nurses who are trained to perform some medical functions in addition to their traditional nursing functions. Physicians' assistants enter training programs with or without previous experience in health care and are trained to assist, or substitute for, physicians.

The first training program for nurse practitioners was founded by Dr. Henry Silver at the University of Colorado, to prepare "nurses with baccalaureate or master's degrees to assume expanded roles in providing total health care to children" (*9*). The 4-month pediatric nurse practitioner program, a joint effort of the Department of Pediatrics of the School of Medicine and the School of Nursing, is intended to increase the availability of child health care. The focus of the training is on well baby care, parent education, and prevention (*10*).

On the other hand, the physicians' assistant concept, which was institutionalized by Dr. Stead at Duke University that same year, has its roots in the medical profession. The program was started after attempts to establish a master's level nurse practitioner program within the Department of Medicine at Duke failed. The accrediting agency for nursing programs, the National League for Nursing, had denied accreditation on the basis that delegating medical tasks to nurses was inappropriate (*11*). Dr. Stead enrolled ex-military corpsmen in the country's first training class for physicians' assistants. The intent of the program was to increase the time available to physicians by training and paying "career-dedicated men who could become their (physician) assistants and who would in effect extend the doctor's arms and legs to provide care for more people" (*12*). The initial emphasis on performing tertiary tasks under the close supervision of a physician in hospitals and clinics (*13*) has varied over time. Most training programs now focus on the delivery of primary care.

The first program to train physicians' assistants for the specific provision of pediatric services began in 1968 at the University of Colorado. The 3-year program requires 2 years of college preparation and

graduates a Child Health Associate who can provide a wide range of diagnostic, therapeutic, and preventive services for children in collaboration with a physician (*14*).

While new programs for health practitioners evolved, attention was given nurse midwives. For example, the Macy Foundation held conferences in 1956 and 1957 to consider their future role in the United States (*15*). Unlike nurse practitioners and physicians' assistants, nurse midwives practice a discipline whose historic origin is independent of medicine.

Professional nurse midwifery was established around the turn of the century in the United States with the founding of the Frontier Nursing Service. Shortly thereafter, the Maternity Center Association was established by the Rockefeller Foundation, first professional school for training nurse midwives in this country. The profession grew slowly; by 1966 only six programs offered certificates of proficiency in nurse midwifery and five programs granted both certificate and masters' in nursing. Only a few legislatures recognized the profession and defined the educational requirements and the role of the nurse midwife in practice (*16*).

The number of training programs for nurse practitioners and physicians' assistants, as well as nurse midwifery services and educational programs, increased somewhat in the late 1960's and early 1970's with support from the Federal government, private foundations, and institutions. Not until 1971, after much deliberation and debate among relevant professional organizations, did these health professionals attain official recognition. In 1971, the American College of Obstetricians and Gynecologists and the Nurses Association of the American College of Nurse Midwives declared that in medically directed teams "qualified nurse midwives may assume responsibility for the complete care and management of uncomplicated maternity patients" (*17*). A few years earlier (*18*), the American Nurses' Association had issued its own statement which recognized nurse midwifery as an appropriate extended role in the nursing profession. Physicians' assistants also received endorsement in 1971 from the American Medical Association. Its House of Delegates adopted "the Essentials of an Approved Educational Program for the Assistant to the Primary Care Physician," which defined a physicians' assistant as "a skilled person qualified by academic and practical on-the-job training to provide services under the supervision and direction of a licensed physician who is responsible for that assistant" (*19*). Agreement was finally reached in 1971, on "Guidelines on Short-Term Continuing Education Programs for Pediatric Nurse Associates" a joint effort of the American Nurses' Association and the American Academy of Pediatrics. These guidelines acknowledged that the nurse's responsibilities should be expanded to include some treatment traditionally performed by physicians in order to deliver child health care more efficiently (*20*).

A major spurt in the growth and development of these professions occurred after 1972, partially as a result of rising Federal interest. The executive and legislative branches of the Government realized that improved access to health manpower could not be attained solely by educating more physicians. In his Annual Health Message of 1971, President Nixon noted the value of nurse practitioners and physicians'

assistants in increasing the availability of primary care manpower. That same year, Eliott Richardson, then Secretary of the Department of Health, Education, and Welfare (DHEW), called for increased utilization of nurse midwives and other nurse practitioners in order to achieve more effective delivery of health care (*21*). In addition to authorizing funds for training more health professionals, the Nurse Training Act of 1971, the Comprehensive Health Manpower Training Act of 1971, and the Emergency Health Personnel Act Amendments of 1972 included provisions for improved geographic distribution of primary care and specialized health manpower (*22*). These provisions included funds for training nurse midwives, other nurse practitioners, and physicians' assistants. The linkage between the development of the new health professions and the distribution of physicians (and to some extent nurses) was forged in these pieces of legislation.

The relationship is strengthened by more recent pieces of legislation in which current Federal health manpower policies are articulated. The complex issues of specialty and geographic maldistribution, which received relatively minor attention in the 1971 Acts, became more prominent in the Nurse Training Act of 1975 and the Health Professions Education Assistance Act of 1976 (HPEA) (*23*). Federal policy, which had previously concentrated on providing equal access to health services by training more health professionals, had not achieved Congressional objectives, particularly in the case of physicians. Indeed, the 1976 HPEA Act declares that "there is no longer an insufficient number of physicians and surgeons in the United States," and includes provisions to compensate for and rationalize their uneven distribution. The Act continues previous initiatives with respect to nurse practitioners and physicians' assistants. Another factor in this decision was concern about the rising costs of health care and the potential role of new health professionals in moderating the rate of price increases.

The Health Professions Educational Assistance Act of 1976 (*24*) authorizes grants and contracts for physicians' assistant training programs and, as amended by the Health Services Extension Act of 1977 (*25*), for the first time directly addresses the need for new health professionals in underserved areas. It authorizes training for nurses who are residents of a health manpower shortage area and who promise to practice in such areas when they become nurse practitioners. It also provides special consideration to practitioners who will train in Health Manpower Shortage Areas. The Nurse Training Act of 1975 (*26*) established new authorities for project grants and contracts for training programs for nurse practitioner programs. This Act can be interpreted as both a response to the Congressional objective to fill unmet needs for primary care and a response within the profession to its growing numbers.

Utilization of new health professionals in health manpower shortage areas is further advanced in the Rural Health Clinics Service Act of 1977, which liberalizes the payment practices of the Medicare and Medicaid programs for health services, including some child and maternal health services, furnished by new health professionals in clinics that are located in medically underserved rural areas (*27*).

CURRENT STATUS

Since their emergence as new health professionals, nurse midwives, pediatric nurse practitioners, school nurse practitioners, and child health associates have become acknowledged contributors to the health of children and women of childbearing age. With a view to considering policy issues, this section presents data on the current supply, distribution, training programs, and practice patterns of these and a few other specific providers of child and maternal health. Geographic distribution of new health professionals is determined in good part by current payment practices and State laws governing the practices of new health professionals that tie their practice locations closely to those of physicians.

Nurse Midwives

Supply

Other than medicine, the profession most often associated with the provision of maternal health services is nurse midwifery. It has grown in numbers and progressed professionally in the United States since the early seventies. In a 1976–77 study, the American College of Nurse Midwifery (ACNM) identified 1,723 nurse midwives in contrast with 1,256 they identified in 1971 (*28*).

In addition, the age composition and professional interests of the group changed during the period. Approximately half of the participants in the 1976–77 ACNM study graduated as nurse midwives after 1969; consequently, the work force is younger overall. It remains predominantly female (99 percent) and white (77 percent) (*29*).

The number of nurse midwives seeking certification, and thereby more professional recognition, also increased. Between 175 and 200 are currently certified annually[2] with new graduates making up a higher proportion than ever before. The proportion in the employed nurse midwifery work force who have entered clinical practice has also increased. In 1976–77, 61 percent of the employed study participants were in clinical practice compared to 41 in 1971—a 49 percent increase (*28*). Interest in clinical practice is particularly evident among graduates of newly established programs. Although 13 percent of the study participants graduated from the programs that started after 1972, 20 percent of those in clinical practice are graduates of such programs (*30*).

Location

Nurse midwives are unevenly distributed throughout the United States. The largest proportion (about 25 percent) is in the Middle Atlantic States and many are in New York City. The next largest proportion is in the Southeastern States (*31*).

For distribution of practicing nurse midwives by size of community and work setting, see table 1. The majority (75 percent) are employed in

[2] Private communication with the American College of Nurse Midwifery, February 1980.

TABLE 1. U.S. Resident 1976–77 ACNM Study Participants in Clinical Practice by Size of Community and Type of Organization Within Which They Practice

Type Work Organization	Nurse Midwives		Percent Distribution by Size of Community					
	Number	Percent	9,999	10,000–49,999	50,000–199,999	200,000–499,999	500,000	Total
Hospital	283	45.6	5	11	20	9	55	100
Public health agency	86	13.8	20	25	13	16	26	100
Private practice with M.D.	80	12.9	14	40	20	9	17	100
U.S. Military	51	8.9	14	29	37	6	14	100
NM maternity service	47	7.6	21	19	9	7	44	100
University health service	31	5.0	0	10	20	30	40	100
Prepaid health plan	21	3.4	0	0	26	5	69	100
Private NM practice	5	2.4	8	8	15	8	61	100
Other	7	1.1	13	29	29	29	0	100
Total	621	100.0	10	19	19	11	41	100

Source: American College of Nurse Midwives, Nurse Midwifery in the United States: 1976–1977, Washington, D.C., 1978.
(Some nurse midwifery programs are classified as nurse practitioner programs.)

institutional settings, with hospitals employing the largest proportion (46 percent) and public health agencies employing the second largest (*32*). Nurse midwives are often employed by municipal and other publicly supported hospitals and public health departments in large cities (*33*). A national survey of nurse practitioner programs also found that more than 44 percent of the graduates of the nurse midwifery programs in the survey practiced in inner cities (*34*).

The proportion of nurse midwives practicing nurse midwifery varies widely (from 17 percent to 76 percent) among regions, with the highest proportion in the rural States of Kentucky, Tennessee, and West Virginia. Less than 7 percent of all nurse midwives in the United States are employed in these States. Nurse midwives have contributed to maternal and child health in rural Appalachia and other rural communities, but nationwide their presence in small communities is limited. Only 10 percent of the nurse midwives in clinical practice, as compared to 34 percent of the United States population, are in communities of less than 10,000 people (*31*).

Training Programs

Of the 17 educational programs for nurse midwives reported in the 1976–77 study, 10 had been started after 1972 (*30*). By 1979, 24 programs were operating, of which only two, the Frontier Nursing Service School of Nurse Midwifery and the United States Air Force training program, were not under university auspices.[3] The two types of programs for nurse midwifery training require certification as a registered nurse for entry. One offers a 7- to 12-month course leading to a certificate, and is open, in most cases, to nurses without a bachelor's degree; the other, which leads to a Master's degree in nursing or public health, requires a bachelor's degree for admission. Both the number and percentage of graduates of nurse midwifery Master's programs have increased in the past few years (*35*).

The increase in the number of educational programs and trained individuals can, in part, be attributed to Federal financial support. Approximately two-thirds of the participants in the 1976–77 ACNM study were educated as nurse midwives with support from DHEW funds (*36*). By 1978, 15 of the 23 (65 percent) nurse midwife training programs were funded by DHEW. Table 2 shows levels of funding for nurse midwife training programs in 1976, 1977, and 1978 (*37*).

Although curricula and programs vary widely, the basic competence required of all nurse midwifery students includes knowledge and skills relevant to the management of normal pregnancies (including ante-, intra-, and postpartum care), family planning and gynecological care, and knowledge and skills for the management of the normal newborn. Additional course work includes aspects of the behavioral sciences, communication, public health, family-centered approaches, counseling,

[3] Private communication with the American College of Nurse Midwifery, February 1980.

TABLE 2. Levels of Funding for Nurse Midwifery Programs

Year	Total Number of Programs	Number of Programs (3) Funded by DHEW	Funding Provided (4) by DHEW
1976	17 (1)	8	$1,260,204
1977	—	14	$2,186,610
1978	23 (2)	15	$2,394,519

Sources: (1) Nurse midwifery in the United States 1976–77 (American College of Nurse Midwives, Washington, D.C.: 1978). (2), (3), (4) Graduate Medical Education National Advisory Committee Interim Report (DHEW, Washington, D.C.: 1979).

patient education, continuity of care, use of community services, and training in the recognition of health complications and deviations, as well as training in consultation and collaboration with other health professionals and research methodology (*38*).

Practice Patterns

As defined by the American College of Nurse Midwifery, nurse midwifery practice is the "independent management of care of essentially normal newborns and women, antepartally, intrapartally, postpartally, and/or gynecologically, occuring within a health-care system which provides for medical consultation, collaborative management or referral" (*39*). Almost all nurse midwives in clinical practice provide prenatal care; about 85 percent manage deliveries and examine the patients 4–6 weeks after delivery, and three-quarters manage the immediate postpartum care of the mother (*40*). The number of nurse midwives attending deliveries increased 55 percent between 1971 and 1976–77 (*28*). In addition to specific obstetrical care, nurse midwives deliver family planning services (90 percent), normal gynecological care (78 percent), and sexual counseling (68 percent) (*40*). The collaboration between nurse midwives and physicians is evident from the responsibilities nurse midwives assume within each general patient care area. They most often provide services needed by normal women and least often services involving complications or invasive procedures. For example, almost all nurse midwives who manage deliveries cut and repair episiotomies (a procedure used in normal childbirth practices in the United States), yet only 15 percent deliver multiple births and 12 percent breech births (*41*).

Although newborn care is required of nurse midwifery students, in practice it is most often limited to the period immediately following birth. Such restriction of the nurse midwife practice may result from the institutional structure that separates pediatrics from obstetrical care, from the preference of the nurse midwives, or from a combination of the two factors. By contrast, in nurse midwifery maternity services about 65 percent of the nurse midwives take care of the newborn until discharge (*41*).

Other Providers of Maternal Health Services

The maternity nurse practitioner is also trained to provide maternal health services. As of 1976 there were 90 or 8.2 percent of enrollees in nurse practitioner programs (*42*). In addition to 11 nurse midwifery programs and 14 maternity nurse practitioner programs, 41 nurse practitioner programs prepare students to perform selected functions in maternity care and family planning (*42*). Students in some adult nurse practitioner programs, some family nurse practitioner programs, and some pediatric nurse practitioner programs, as well as students in nurse midwifery and maternity nurse practitioner programs, are trained to perform physical and pelvic examinations for all maternity patients except those with symptomatic complaints (*43*). Except for nurse midwifery programs, no program prepares its graduates to assume complete responsibility for the woman in childbirth.[4] The services performed in practice closely approximate those taught in the training programs (*44*).

Other types of nurse practitioner programs to train providers in maternity care and family planning are now emerging. The American College of Obstetricians and Gynecologists has developed guidelines for a certificate program for "obstetric–gynecologic" nurse practitioners (*45*). The Department of Health and Human Services (DHHS), successor to DHEW, is now funding nurse practitioner programs in obstetrics–gynecology and women's health.[5]

The family planning nurse practitioners are also trained to assume clinical responsibility for family planning. In most cases, they are nurses who have on-the-job training after a very short formal training course or nurses who have taken a concentrated training program of 12–16 days (*46*). An estimated 1,200 family planning nurse practitioners have been trained in the last 4 years (*47*).

The number of physicians' assistants presently providing maternal health services is extremely small. In 1978, of the 3,240 respondents to a national survey of physicians' assistants, 1.3 percent reported obstetrics–gynecology as their primary area of practice, 2.3 percent reported it as their secondary area of practice and 1.4 percent reported that their supervisory physician was an obstetrician–gynecologist.[6] Physicians' assistants working with family physicians, internists, and other physicians undoubtedly provide some maternal health services as well.

A task profile of 258 primary care physician's assistants shows that at least a fourth were performing some maternal health services, such as carrying out uncomplicated deliveries, inserting IUD's, and measuring for diaphragms with or without the presence of a physician.[7] Physicians'

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[4] Private communication with the Division of Nursing, Bureau of Health Manpower, Department of Health, Education and Welfare, January 1980.

[5] Private communications with the Division of Nursing, Bureau of Health Manpower, Department of Health, Education and Welfare, January 1980.

[6] Private communication with the Association of Physician Assistants Programs—American Academy of Physicians' Assistants, 1978. Survey, unpublished preliminary data.

[7] Private communication with the Association of Physician Assistants Programs—American Academy of Physicians' Assistants, Task Profile, unpublished data.

assistants who deliver maternal health services are graduates of either primary care or surgical physicians' assistant training programs who choose to work in this area. No training programs for physicians' assistants currently specialize in obstetrics-gynecology (*48*), although most programs include obstetrics-gynecology in the clinical phase. No legal restrictions on the use of physicians' assistants for obstetrical-gynecological care exist in those States which legally recognize physicians' assistants (*49*).

Pediatric Nurse Practitioner

Supply and Location

Formal nurse practitioner training programs graduated 14,260 persons in 1978, almost 5,000 of whom were pediatric nurse practitioners (*50*). Overall, graduates of pediatric nurse practitioner training programs are evenly distributed by region and are the largest group of nurse practitioners in each region (*51*). Pediatric nurse practitioners are well represented in inner city areas. One-third of the graduates of nurse practitioner programs are located in inner cities, as are 42 percent of the graduates of pediatric nurse practitioner programs (*52*).

Most primary care nurse practitioners (62 percent), including pediatric nurse practitioners, work in ambulatory clinical practices, particularly in hospital-based clinics, and community-based clinics or centers; (*52*) the majority of those employed in inner city areas are in hospital practices (44 percent) (*53*).

Training Programs

A national study of nurse practitioner training programs initiated in 1974 reported 133 eligible programs, 35 of which had been functioning in 1970 (*54*). More programs train pediatric nurse practitioners than any other specialists. The 42 certificate pediatric nurse practitioner programs vary in duration from 4 to 24 months, with an average of 8 months. The 8 master's programs usually range from 13 to 24 months, averaging 16 months (*55*). Programs also differ as to sponsorship. All the master's programs in pediatrics are under university or college aegis; 33 of the certificate programs are similarly sponsored. The other certificate programs are connected to hospitals (6), a department of health, a coordinated home health program, an outpatient facility and a regional medical program (*56*). The programs are evenly spread throughout the United States by region; more than 90 percent include practice in rural or inner city areas, more often in the latter.

A major funding source for pediatric nurse practitioner training programs in 1979 was the Federal Government. (See table 3.)

Pediatric nurse practitioner programs do not have a standard curriculum. Certificate pediatric nurse practitioner programs in general devote more time to practice skills than do master's programs. Almost 30 percent of the time spent in master's programs is devoted to research, teaching, and supervision (*57*).

TABLE 3. Types and numbers of Nurse Practitioner Programs

Specialty of Nurse Practitioner Program	Number of Training Programs	Number of Yearly Graduates
Total		
Pediatrics	31	280
Total	27	220
Certificate	21	175
Master's	6	45
School Health		
Total	4	60
Certificate	4	60

Source: Division of Nursing, Bureau of Health Manpower Health Resources Administration, Department of Health, Education, and Welfare; 1979 figures.

The Association of Faculties of Pediatric Nurse Associate Practioner Programs in 1973–74 developed educational objectives and curricula for training programs that most programs ascribe to. It described a pediatric nurse practitioner as having expertise in growth, development, and physical assessment. In addition, "as a professional with particular competence in health maintenance and counseling, the nurse practitioner should be expected to develop her mode of practice. The relationship with physicians should be one of interdependence..." (*58*). Curricula emphasize the care of the well child and the child with common childhood problems. They include data gathering and physical assessment, interviewing and counseling, growth and development, health maintenance (which is defined as a major function of the pediatric nurse practitioner), and the management of common childhood problems. Although instruction in major problems such as coma, seizures, and cardiac failure is included in the curriculum, pediatric nurse practitioners are not expected to manage such conditions in practice (*59*).

Practice Patterns

Most pediatric nurse practitioners primarily provide care for healthy infants and children. Fewer provide care for physical illness, emotional or mental health problems, and emergencies (*60*). (See table 4.) As table 4 also shows, a higher proportion of master's degree graduates than graduates of certificate programs provide care for physical illness, emotional/mental health problems and emergencies.

In addition to training, physician preference affects the activities of pediatric nurse practitioners. A recent survey of pediatricians confirms the results of earlier studies that physicians are interested in delegating the care of well children and the management of minor illness (*61*). Relatively few physicians, even among those who employ pediatric nurse practitioners (34 percent), would delegate the physical examination of children with chronic illness and fewer still the continuing management of children with chronic illness (*62*).

TABLE 4. Percent of Pediatric Nurse Practitioners Providing Selected Types of Care to Specific Categories of Patients, by Type of Nurse Practitioner Program

Categories of Patients	Care Provided[1] and Type of Program					
	Well/Health Assessment	For Physical Illness	For Emotional/ Mental Health	Family Planning	Maternity	Emergency
			Certificate N–169			
Infants	75.7	64.5	40.2	—	—	22.5
Children	89.3	74.0	60.4	—	—	34.9
Adolescents	68.6	59.2	49.1	25.4	13.6	30.2
Adults	10.6	10.6	9.5	8.3	8.9	9.5
Elderly	3.6	4.7	3.0	—	—	4.7
			Master's N–7			
Infants	100.0	100.0	71.4	—	—	42.9
Children	85.7	85.7	71.4	—	—	28.6
Adolescents	57.1	71.4	71.4	28.6	—	28.6
Adults	—	—	—	—	—	—
Elderly	—	—	—	—	—	—

[1] Nurse Practitioners for this presentation are those providing primary care.
[2] Three Nurse Practitioners completing certificate programs did not supply information on the types of care provided.

Source: Harry Sultz, Maria Zielezny, Jane M. Gantry, and Louis Kinyon. "Longitudinal Study of Nurse Practitioner." Phase II (DHEW Pub. No. 78–92) September 1978.

School Nurse Practitioners

School nurse practitioner training programs focus on health needs of school-age children in the school setting. Since the first training program was established by Dr. Henry Silver at the University of Colorado, other formal programs have been started. The Division of Nursing of the Bureau of Health Manpower of DHHS currently funds four school nurse practitioner programs that graduate 60 students annually (see table 3).[8] School nurse practitioners working in close collaboration with physicians provide school health care in 37 States; many cities and counties have actively integrated them into their school systems (*63*).

The program at the University of Colorado is a 16-month course of study that trains registered nurses to assume basic responsibility for managing many of the health problems of school children. School nurse practitioners are prepared to offer comprehensive well-child care and to identify and assess the factors that may produce learning disorders, psycho-educational problems, perceptive and cognitive difficulties, and behavior problems as well as problems causing physical disease (*64*).

Few data on the actual performance of the school nurse practitioner are available. The School Project in Colorado, one of four school health projects initiated and funded by the Robert Wood Johnson Foundation in 1978, expects to use school nurse practitioners in collaboration with physicians to provide services in four broad areas—the evaluation and management of health status, the evaluation and management of growth and development, the promotion of health teaching and health counseling, and the integration of health care (*65*). In a letter to the Governor of Iowa, Dr. Silver reported that school nurse practitioners in two economically deprived suburbs of Chicago are providing ongoing and preventive health care. They also treat "cases which previously might have required visits to any emergency clinic in hospitals outside these communities (or probably would have received no care at all). They carry out physical examinations for all the children within the district to identify problems and followup on those previously identified or ignored. About 20 percent of the children are referred to a physician" (*63*).

Other Nurse Practitioners Who Provide Child Health Services

Students in midwifery, maternity, and some family nurse practitioner programs, as well as those in pediatric nurse practitioner and school nurse practitioner programs, are prepared to deliver services to infants and children. All programs emphasized care of the healthy infant and child, the child with mild acute illness, and the child with a mild attack of a chronic illness. About 80 percent of the programs prepared students to assume health care of healthy infants and children, and children with mild problems. Only about 50 percent taught the management of mild chronic

[8] Private communication with the Division of Nursing, Bureau of Health Manpower, Department of Health, Education, and Welfare, February 1980.

illness (*66*). The pediatric nurse practitioner training programs, however, offer the most intensive and concentrated instruction in such areas. The practice patterns of nurse practitioners providing child health services are similar to their training preparation.

The Child Health Associate and Other Physician Assistants Who Provide Child Health Services

The Child Health Associate Program established at the University of Colorado Medical Center in 1970 remains the only physicians' assistant program that trains physicians' assistants who are specialists in pediatrics. The program lasts 3 years and includes the basic sciences, history taking, physical diagnosis, medical and surgical subspecialties, pharmacology, emergency medicine, psychosomatic and emotional problems, and development. The training differs from the medical school approach in its "concentration on the practical application to pediatrics of factual and comprehensive information; and the elimination of extensive consideration of subject matter not relative to pediatrics and to relatively uncommon, severe or disabling conditions" (*67*). Clinical experience is obtained in the nursery, well-baby clinic, pediatric wards, and various community facilities. A 1-year internship in a variety of settings is required.

In this manner, the child health associate is prepared to deliver most of the services utilized in ambulatory child care and routine hospital care of the newborn, including prescribing certain drugs under a physician's supervision. All these activities are recognized in the Colorado law (*68*). Serious illnesses and complex cases are referred to physicians.

In a 1978 national survey of physicians' assistants 2.3 percent of the 3,295 respondents, including child health associates, designated pediatrics as their primary discipline and 1.8 percent designated pediatrics as their secondary discipline.[9] Almost 3 percent (114) said their supervising physician was a pediatrician. Without question, some physicians' assistants employed by other medical specialists, such as family physicians, are also providing some service to infants and children.

FUTURE ROLE

The future of the new health professions that provide child and maternal care depends on their professional competence and on the social context within which they function. As noted earlier, official recognition of pediatric nurse practitioners, nurse midwives, and physicians' assistants by concerned medical organizations came relatively early in the development of the professions. Since that time they have had the opportunity to demonstrate their professional competence and have received varying

[9] Private communication with the Association of Physicians' Assistants Programs and American Academy of Physicians' Assistants, 1978 Survey, unpublished preliminary data.

degrees of recognition from patients, individual physicians, and Federal and State governments. Concurrently, the societal forces instrumental in determining their future changed; the social climate of today differs markedly from the one in which the profession began to flourish.

Profession-Related Determinants

Quality of Care

In order to be recognized as qualified providers of child and maternal health services, new health professionals have to demonstrate their ability to deliver quality care. The inadequacy of current methods of defining and measuring quality, particularly when it relates to clinical decisionmaking, creates a major difficulty (*69*). Many of the problems associated with child health are characterized by ill-defined, self-limiting conditions and by symptoms for which there are no recognized and accepted therapeutic techniques. In general, the use of outcome as a measure of effectiveness is of questionable value because the determinants of outcome are often out of the provider's control and may be the result of economic, social, or other nonmedical factors (*70*). In addition, the techniques for assessing the performance of new health professionals have many methodological problems (*71*). Of specific concern is the fact that many evaluations have been performed by educators and other proponents of the new professions.

Nevertheless, a recent rigorous review of studies comparing the care provided by nurse practitioners (including pediatric nurse practitioners) and physicians' assistants with that given by physicians concludes that "nurse practitioners and physicians' assistants provide office-based care that is indistinguishable from physician care" (*72*). This finding duplicates that of an earlier evaluative review (*73*).

Specifically, child health associates compare favorably with pediatric residents and medical students in formal knowledge, and compare favorably with pediatricians in their ability to diagnose the problems of ambulatory pediatric patients (*74*).

Pediatric nurse practitioners are proficient in assessing normal and abnormal findings in children. One study demonstrated an 86 percent agreement between pediatric nurse practitioners and pediatricians in appraising the physical status of children; in only 0.7 percent of the cases was the difference considered significant (*75*). Other studies have demonstrated that pediatric nurse practitioners are as competent as physicians in achieving health care objectives such as the satisfactory health status of their patients, or completing immunizations (*76*). The few quantitative studies assessing the quality of care provided by school nurse practitioners show they communicate better with family, teachers, and physicians in the community than school nurses (*77, 78*).

Nurse midwives can provide a range of specific services of equal or better quality than physicians for normal newborns and women. In a well-designed quantitative study, nurse midwives were reported to increase the amount of prenatal care and decrease the rate of premature and neonatal

mortality in a county hospital (*79*). Another experimental study of uncomplicated deliveries showed no significant difference in the outcome of care when provided by nurse midwives or by house staff except that patients of nurse midwives complied more often in keeping appointments and that few patients of nurse midwives underwent forcep deliveries (*80*).

A recent quantitative study compared infant health status and expenditures for care before and after the implementation of a nurse midwifery program. It also compared infant mortality rates in counties taking part in the program with those of nonparticipating counties. Infant health status improved during the program's course with respect to birth weight and disease present at birth. Improvements in the gestational period and neonatal mortality ratios were also observed, but results were not conclusive. The infant mortality rate was lower in the counties with the midwifery program. However, the authors do not attribute this solely to the use of nurse midwives (*81*).

Favorable results in the quality of care delivered by nurse midwives are also reported in less rigorous, observational studies. The population served by Frontier Nursing Service Program, which retains and uses nurse midwives, has not had a single maternal death since 1954. In general, the health status of infants delivered in this program is superior to that of other infants born in the United States with respect to still births, premature births, and neonatal deaths (*82*).

The quality of care delivered by nurse midwives in urban settings is also reported as being high. For example, nurse midwives increased the number of postpartum examinations in King's County Hospital in Brooklyn (*83*). The Childbearing Center in New York City uses a multidisciplinary team including obstetricians and certified nurse midwives to care for patients with a minimum use of technology in a homelike setting. Potential high risk cases are referred for hospital care. The Center claims to provide high quality care for essentially normal women. "The New York State Health Department, the Health Systems Agency of New York City, Blue Cross/Blue Shield of New York City ... have looked at data and concluded we operate safely" (*84*).

Physician Acceptance

The new health professional requires the acceptance of the practicing physician for employment and for successful integration in a medical practice. Physician acceptance of new health professionals has been studied in surveys on physician attitudes toward the need for new health professionals and physician interest in employing new health professionals, in surveys of physician satisfaction with the performance of new health professionals, and in surveys that determine the employment status of new professionals. The first two types of surveys have many methodological shortcomings. All the surveys have concentrated on the new health professional working as a team member with the primary care physician (*61*).

Such surveys generally show that most physicians accept the concept of new health professionals. The number of physicians perceiving a need for

new health professionals is far higher than the number willing to hire one; young physicians, physicians in group practice, and physicians who have had firsthand experience with new health professionals are most interested in hiring them. Willingness to delegate tasks and patient care depends on the particular task and activity. Most physicians who hire new health professionals are satisfied with their performance (*61*).

Nurse midwives have had difficulty in obtaining physician acceptance. In an early (1971) survey of the members of the American College of Obstetricians and Gynecologists, more than 50 percent of the respondents favored the delegation of more tasks to nurses and 30 percent favored using nurses in an even broader role. Although the respondents recognized a need for maternity, obstetric, and gynecologic nurse practitioners, they concluded that nurse midwives were not needed. The study participants favored delegating nursing services, but not those services traditionally performed by nurse midwives (*85*). Obstetrician–gynecologists are thought to fear competition from nurse midwives as threatening to their position as the sole providers of a special type of medical care (*86*).

In contrast, in a survey of members of the American Academy of Pediatrics as early as 1967, pediatric nurse practitioners received physician approval and were cited as a successful example of the expanded role of nursing (*87*). This and later studies showed that physicians' acceptance of the pediatric nurse practitioner, whether or not they employed one, depends on the activity performed.

One of the most recent studies, a 1978 survey of the membership of the American Academy of Pediatrics, confirms previous findings (*61*) that the pediatric nurse practitioner was the type of new health professional favored by most pediatricians. Pediatricians who employ nurse practitioners report that the greatest benefits of doing so are increased time for other activities and more patients. All pediatricians expect to delegate more patient care in the future. A higher percentage of those who currently employ pediatric nurse practitioners delegate patient care activities than do other pediatricians. On the whole, pediatricians are more willing to delegate well child examinations of children under 12, routine well-child care, and management of minor illnesses to pediatric nurse practitioners. Fewer are willing to delegate well-child examinations of children over 12, physical examinations, continuing care of children with chronic illnesses, and care of newborns in the hospital.

The employment status of new health professionals is the most relevant indicator of physician acceptance. Despite the reservations of many physicians as to the need for nurse midwives, the unemployment rate of nurse midwives is low. The 1976–77 survey of the American College of Nurse Midwifery reports, however, that most nurse midwives (76 percent) worked in institutional settings. Nearly 83 percent of the nurse midwives participating in the survey were employed as nurse midwives, were in school, or were in brief periods of transition. About 7 percent were permanently unemployed or retired. About 8 percent were employed in positions not related to child and maternal health, and 2.6 percent wanted to work as nurse midwives but were unable to do so for a variety of reasons, including lack of certification, the need for a refresher course, or the inability to find positions in their communities (*88*). Comparable

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results were reported in a national survey of graduates of nurse practitioner programs released in September 1978. This survey included graduates of 11 nurse midwifery programs, about 79 percent of whom were employed as nurse practitioners; 14 percent were employed but not as nurse practitioners; about 8 percent were not employed. (See table 5.) (*89*).

The same study reported the employment status of graduates of 50 pediatric nurse practitioner programs, including 3 school nurse practitioner programs. About 75 percent of the pediatric nurse practitioner respondents were employed as nurse practitioners; 14 percent were employed but not as nurse practitioners; about 12 percent were not employed. (See table 5.)

The principal reason cited by nurse practitioners for their lack of employment was that they were not seeking employment. The certificate program graduates not employed as nurse practitioners were working in traditional nursing roles mainly in institutional settings. The majority of master's program graduates who were not employed as nurse practitioners were teaching in schools of nursing but not teaching nurse practitioners or were employed in hospitals, probably in supervisory positions (*90*).

The employment status of child health associates is similar to that of pediatric nurse practitioners and nurse midwives. Currently 10 percent of physicians' assistants, including child health associates, are unemployed or employed in fields where their training is not utilized (*91*).

The reluctance of physicians to hire new health professionals has been the subject of many studies and is generally attributed to their uncertainty about licensing laws and regulations, insurance and liability issues, patient acceptance, space limitations, cost-effectiveness, and the effect of new health professionals on physician–patient relations (*92*).

Patient Acceptance

Sensitivity to consumers' interests and concerns has directed attention to the critical issue of patient acceptance and satisfaction with health care providers (*93*). If a provider is to achieve professional acceptance, public recognition must be forthcoming. Indeed, as previously noted, physicians say that uncertainty about patient acceptance deters them from hiring new health professionals. Conversely, achieving patient acceptance depends in part upon the physicians' conveying to the patient a sense of approval of the pediatric nurse practitioners, child health associate, or nurse midwife (*94*). For new professionals to be well received, patients and physicians need adequate information about their qualifications and functions (*95*).

An evaluative review of patient acceptance concludes that patients are generally satisfied with new health professionals. In fact, no contrary data have been reported. The factors involved in patient acceptance are the type of care delivered, the independence of the new health professional, and the setting (*93*).

Additional surveys concerning nurse practitioners providing pediatric care in private and clinic settings confirm findings that patient acceptance is dependent upon the health care activity and that the nurse practitioner is accepted for well-baby care, physical examinations, and care for minor

TABLE 5. Employment Status of Nurse Practitioner Graduates, by Specialty and Type of Nurse Practitioner Program

Employment Status	Specialty and Type of Program													
	Pediatric		Midwifery		Maternity		Family		Adult		Psychiatric		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
							Certificate							
Employed as NP[1]														
Providing primary care	172	73.2	9	60.1	26	68.4	102	85.1	94	83.9	—	—	403	77.5
Teaching, consulting, etc.	5	2.1	2	13.3	—	—	1	.8	4	3.6	—	—	12	2.3
Employed, not as NP	28	11.9	2	13.3	9	23.7	4	3.3	8	7.1	—	—	51	9.8
Not employed	30	12.8	2	13.3	3	7.9	13	10.8	6	5.4	—	—	54	10.4
Total	235	100.0	15	100.0	38	100.0	120	100.0	112	100.0	—	—	520	100.0
							Master's							
Employed as NP[1]														
Providing primary care	7	35.0	25	69.4	4	22.2	44	69.9	14	28.0	3	17.6	97	47.6
Teaching, consulting, etc.	3	15.0	4	11.1	—	—	6	9.5	4	9.0	3	17.6	20	9.8
Employed, not as NP	8	40.0	5	13.9	11	61.1	7	11.1	29	58.0	11	64.8	71	34.8
Not employed	2	10.0	2	5.6	3	16.7	6	9.5	3	6.0	—	—	16	7.8
Total	20	100.0	36	100.0	18	100.0	63	100.0	50	100.0	17	100.0	204	100.0
							Total							
Employed as NP[1]														
Providing primary care	179	70.3	34	66.7	30	53.6	146	79.8	108	66.7	3	17.6	500	69.1
Teaching, consulting, ect.	8	3.1	6	11.8	—	—	7	3.8	8	4.9	3	17.6	32	4.4
Employed, not as NP	36	14.1	7	13.7	20	35.7	11	6.0	37	22.8	11	64.8	122	16.8
Not employed	32	12.5	4	7.8	6	10.7	19	10.4	9	5.6	—	—	70	9.7
Total	255	100.0	51	100.0	56	100.0	183	100.0	162	100.0	17	100.0	724	100.0

[1] Included in this category are respondents functioning wholly or in part as Nurse Practitioners.

Source: Harry Sultz, Maria Zielezny, Jane M. Gentry, and Louis Kinyon. "Longitudinal Study of Nurse Practitioner." Phase II (DHEW Pub. No. 78–92) September 1978, p. 37.

complaints (*96*). Parents are as satisfied with team care as with care from the pediatrician alone and more satisfied with development assessments provided by the team (*97*).

A more precise measurement of patient acceptance is the willingness of a patient to use a provider's service. In a study of a prepaid group practice, mothers were assigned for well baby care either to a pediatric nurse practitioner or to a pediatrician. They were free to refuse participation in the study and to change practitioners at any time. The acceptance of the pediatric nurse practitioner by the mothers was indicated by the high degree of participation in the study, the relatively low percentage of mothers who crossed over from the pediatric nurse practitioner, and the insignificant difference in rates of appointments with pediatric nurse practitioners and pediatricians cancelled (*98*).

One of the few studies of patient acceptance of child health associates demonstrated that patients accept this care (*99*). The very low number of physician referrals made by the child health associate is a positive indicator of such acceptance.

Patient acceptance of nurse midwives has been recorded for patients of most economic classes, for patients of solo private practices, group practices, satellite clinics, and hospital clinics, and for most care involved in a normal pregnancy and family planning—including management of pre-, intra- and post-partum care, family planning and routine examinations (*100*). One report demonstrates that patients were pleased with the understanding, supportive care of nurse midwives, and with their willingness to devote extended periods of time to their care (*101*). Other researchers perceived advantages such as ease of communication (*102*) and the chance for increased patient control during delivery (*103*).

A recent survey of middle class women in a childbirth education class showed that women with prior experience with nurse midwives had more positive attitudes to and more knowledge about nurse midwives. Favorable feelings toward nurse midwives increased with age, educational background, and number of births (*104*). The findings correspond to those reported in studies of patient acceptance of physicians' assistants and nurse practitioners. Patients who had prior experience with these practitioners and high levels of education were more positive in their attitude toward the practitioners than other patients. Patients were more accepting of simple services (such as physical examinations) from new health professionals than of services for serious conditions (*105*).

Productivity

The professional standing of the new health professions depends on their acceptance by physicians, government, and others, which is, in turn, influenced their productivity. Although little literature exists, findings indicate that new health professionals who provide children's health services increase the productivity of medical practices (*106*).

Most studies of the productivity of new health professionals examine only those activities or office visits already delegated, not those that could be delegated. The many constraints on reimbursement and practice

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patterns imposed upon new health professionals inhibit maximum delegation of responsibility and thereby prevent productivity.

A recent comprehensive review of delegation, costs, and productivity reports that up to 90 percent of the visits for pediatric primary care have been safely delegated. The actual level of delegation varies according to the age, size, and structure of the practice, the supervisory physician's attitude, the triage system, and other factors (*107*).

In terms of time spent with patients, new health professionals—especially nurse practitioners—are less productive than physicians. For example, one study of primary care visits found that child health nurses averaged 21.0 minutes per well child visit and pediatricians averaged 12.8 minutes (*108*). However, the accuracy of minutes per visit as a measure of productivity is questionable because of many other variables not included in the calculation, such as variations in the content of visits and the number of repeat visits after each measured visit (*109*).

Comparing the work accomplished by a practice before and after the addition of a new health professional may be a more reliable indicator of the productivity of the new health professional. Findings indicate that primary care office visits in small practices can be increased by 40 to 50 percent with the addition of a new health professional; the percentage of office visits in large practices is increased even more. The authors conclude that new health professionals providing office pediatric care can be highly productive (*110*). Other evidence indicates that pediatric nurse practitioners can provide primary pediatric care in a large urban public health system (*111*).

When productivity is measured in terms of substitution ratio (i.e., that fraction of a physician a new health professional replaces) the substitution ratio of physicians to new health professionals in pediatrics in a large health maintenance organization was found to be 0.48 (*112*).

Less accurate information is available on the productivity of nurse midwives and other new health professionals in obstetrics–gynecology. Research suggests a nurse midwife on the staff of a practice increases the volume of patient visits from 23 percent to 98 percent depending on the type of practice (*113*). Nurse midwives are about 23 percent as productive as obstetricians when the number of deliveries is used as the output measure (*113*). As noted in studies of the acceptance of nurse midwives by physicians, obstetrician–gynecologists are extremely reluctant to delegate deliveries. Thus this figure may not represent nurse midwives' productivity, but may reflect the unwillingness of obstetrician–gynecologists to permit nurse midwives to participate.

Cost-Effectiveness

Governmental acceptance and acceptance by physicians, hospitals, and other professional organizations has become more and more dependent upon the cost-effectiveness of the new health professionals. They are cost-effective as gauged by their training costs compared with those of physicians (*114*). The Institute of Medicine reported that in 1972–73 the average cost of training a medical student was $12,650 per annum within a range of $6,900 to $18,650 (*115*). The average annual cost of training a

student in a pediatric nurse practitioners certificate program was $6,700; in nurse practitioners masters programs $14,300; in physicians' assistant programs $12,200; in nurse midwifery programs $9,300 (*116*). The training costs for nurse practitioners and nurse midwives did not include those for nurses' training. When these figures were extrapolated for 1978, assuming a 7 percent rate of inflation for medical schools and training programs of new health professionals, physicians were found to be five to seven times more costly to train than new health professionals (*117*). This disparity would be even greater if the costs of graduate medical education in primary care were factored in (*118*).

A more sophisticated calculation includes the costs of residency training and the opportunity costs associated with the longer training period. It establishes the difference in training cost for new health professionals and physicians at $113,000 per provider. According to both analyses physicians are much more costly to train than new health professionals (*118*).

Determining whether adding a new health professional to a practice is cost-effective is exceedingly complex. It requires detailed information on the level of productivity of the new health professionals—the mode of utilization in the practice (are they improving the quality of the services, adding to the variety of services provided, or increasing the case load?), the amount of physician supervision, and the physician's effort. Cost-effectiveness also depends on factors external to the practice, such as the demand for medical services and reimbursement policies. Many studies are faulty, but the results have been consistent.

Available evidence suggests that new health professionals can improve the cost-effectiveness of a medical practice. Based on the difference in time spent with patients by physicians and new health professionals and on the difference in their employment costs, appropriate medical services can be delivered by a nurse practitioner at about two-thirds to three-quarters of the cost of a physician and by a physician assistant at about one-third to one-half the cost (*119*). However reductions in practice expenses will accrue only if the physician's own work does not decrease and if the medical services provided by the new health professional are substitutive and not additive.

The difference in average salaries between physicians and new health professionals is at least $30,000 per year. Little evidence supports the conclusion that this difference is diminished by the costs of support or auxiliary services or overhead required by the addition of such employees to a practice. Thus, the hiring of a new health professional can be a substantial cost saving to the employer in the delivery of customary office primary care (*120*). Pediatric nurse practitioners deliver primary pediatric care economically in a large urban public health system (*114*). Whether the savings will be passed on to patients or to the taxpayer is not clear. One study reports that in practices with new health professionals, the average billings per visit to the patient and to the third-party payer were not as high as billings in practices that did not employ them (*121*).

The savings from substituting new health professionals for physicians in office settings were calculated to be about 20 percent of total provider costs. The calculation assumes a low level of delegation and factors in the size of the medical practice and market problems (*122*). If new health

professionals were used to their maximum capabilities, provider costs would be reduced even more.

Similar analyses have not been attempted for nurse midwives. However, based on a casual examination of training costs, productivity, and salary differentials, considerable cost savings are expected in total provider costs with the utilization of nurse midwives. In one childbearing center that employs nurse midwives, deliveries have been markedly less expensive than traditional hospital deliveries for both the families and the health care provider (*123*).

Payment for Services

Financial remuneration is generally equated with professional status. Thus, Federal and Federal–State programs' payment to a profession is a measure of governmental recognition of the profession. The Federal Government has been ambivalent in its response to the new health professions, including those that deliver child and maternal health services. Approximately 9 years after the Government funded the first training program for nurse practitioners and physicians' assistants, it remains inconsistent in paying for their services. Private insurers are equally hesitant. When payment for the services of new health professionals is permitted by Federal programs and by private insurers, it is almost always to the physician or other employer, thus linking the new health professionals directly to the physicians and their needs. Indirect payment and other public and private payment practices have deterred the new health professions from fulfilling their potential by limiting their geographic mobility and the type of services they provide.

Medicaid and Medicare

Medicare and Medicaid are the principal Federal and Federal–State programs that pay for provider services. Payment of new health professionals varies under Medicare with the setting of the provider (*124*). The basic relevant Medicare Part B regulation which applies to new health professionals in noninstitutional settings prohibits payment for medical services not rendered by a physician except for such services "furnished as an incident to a physician's professional service of kinds which are commonly furnished in physicians' offices and are commonly either rendered without charge or included in the physician's bill." The "incident to" provision was intended to cover blood tests and other simple procedures performed by medical assistants and office nurses. It was later interpreted to mean that services provided by new health professionals are not eligible for reimbursement unless they are provided under the personal and immediate supervision of a physician and are services normally delegated by physicians. The physician is required to be present when the service is delivered. This interpretation does not recognize that new health professionals are trained to perform some diagnostic and treatment tasks and that many States authorize them to perform these tasks.

Under part A of Medicare the salaries and expenses of new health professionals employed by hospitals, nursing homes, or other institutions

can be included in the cost formula for reimbursement. Similarly, a Medicare cost reimbursement program for federally funded health centers allows them to include the salaries of new health professionals in their cost calculations if they are directed by physicians. Health maintenance organizations (HMO's) may include new health professional costs in capitation rates.

As under Medicare, Medicaid part A allows salaries of new health professionals may be included in cost reimbursement formulas for hospital reimbursement or for HMO capitation rates if payment is in accordance with State law (*124, 125*). In all States where they are allowed to practice, new health professionals may be reimbursed by Medicaid through their supervising physicians for services provided in noninstitutional settings which are "incident to" the physician services.

The laws permitting payment for the services of new health professionals vary from State to State. Twenty-one States have explicit policies which provide for payment for the services of some new health professionals in some ambulatory settings; twenty-one States and the District of Columbia have explicit policies which prohibit payment for the services of new health professionals regardless of practice setting; eight States have no explicit policy but acknowledge that physicians do bill for the services of new health professionals in their own names and are reimbursed (*126*).

The Federal regulation governing Medicaid payment requires physician supervision in all settings, but leaves it to the States to define the degree of supervision. Among the States that permit payment for services provided by new health professionals there is, therefore, considerable variation in supervision policies as well as in payment levels and other payment practices (*127*). In some States, reimbursement policy has not kept pace with licensing policy, and the new health professionals may have legal recognition but do not have recognition for payment purposes.

Rural Health Clinics Act

The Medicare and Medicaid policy of not paying for new health professional services unless they were performed under the direct supervision of a physician has been especially hard on rural communities, many of which rely upon such professionals employed in rural clinics. The passage of the Rural Health Clinics Service Act in 1977 was heralded as an important advance for new health professionals. It also brought needed medical services to areas where they were lacking or difficult to obtain (*127*). The Act takes into consideration the many isolated communities that have not been able to attract or retain physicians and provides payment under Medicare and Medicaid for the services of new health professionals in certified clinics. To be approved under the Act, a clinic must be located in a State that permits physicians' assistants or nurse practitioners to furnish primary care and in a rural area which has been designated medically underserved or a health manpower shortage area by the Public Health Service. Reimbursement is related to cost. The level of physician supervision has been modified and Federal payment is authorized when a physician may be available only for indirect supervi-

sion and consultation. Because of the limited provisions of the Act, additional initiatives are required if liberalized payment to all new health professionals in underserved areas is desired.

Until the passage of the Rural Health Clinics Act, nurse midwives were treated as nurse practitioners and physicians' assistants under the Medicare and Medicaid programs. The Rural Health Clinics Act differentiates between nurse midwives and other new health professionals for the purpose of certification. In order for a facility to qualify for certification, it must have a nurse practitioner or physicians' assistant on its staff or paid by the facility participating in the provision of primary care. Once the facility is certified, payment can be made for the services of the nurse midwife. Payment is based on the number of visits for which the services of qualified providers were rendered (*128, 129*).

CHAMPUS

Nurse midwives have received fiscal recognition from the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Until the passage of P.L. 95–457 (the Defense Appropriations Act of 1979) certified nurse midwives were allowed payment only when physician supervision and referral occurred. The 1979 Act is more liberal in its attitude and provides for such payment even when rendered independently of physician referral and supervision (130). In addition, legislation has recently been introduced in Congress to reimburse for the services of nurse midwives under Medicare and Medicaid (131). The legislation has been supported by the Secretary of DHEW with the conditions that payment be made to the employing physician or clinic and that there be an all inclusive rate for a package of services.[10]

Private Insurers

Blue Cross/Blue Shield and commercial insurers usually pay for the services provided by nurse practitioners, nurse midwives, and physicians' assistants only when such services are directly supervised by a licensed physician. Payment is usually made to the physician. The practice reflects the policy of the individual companies and is in accord with the State laws regulating insurance practice. Blue Cross/Blue Shield and commercial insurers have engaged in experimental programs, but standard payment procedures in most States have not substantially changed (*132*).

Recently, a few States have drastically changed their laws or regulations regarding private insurance practice to require payment for the services of nurse midwives and, in one instance, nurse practitioners. The General Assembly of Maryland passed a bill effective July 1, 1979 that requires every health insurer in the State to offer the option of "care, treatment, or services rendered by a nurse midwife" (*133*). A controversial provision in the new Act is that the insurance company cannot require the nurse midwife to be under the supervision, orders, or employ of a physician as a condition for payment. The bill also authorizes Medicaid to contract with

[10] Private communication with the Office of the Assistant Secretary of Health, February 1980.

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nurse midwives for provision of care for eligible persons. New Mexico passed a bill in 1979 that requires private insurers to pay for services by nurse midwives. The Insurance Commissioner of Utah ruled that insurers in Utah could not deny payment for the services provided by nurse midwives (*134, 135*).

Most recently, Mississippi passed legislation requiring all insurance companies regulated by the State Insurance Agency to pay nurse practitioners directly for their services (*136*). Nurse midwives are included in the definition of nurse practitioner in the legislation because it was passed with the intent of reducing the cost of medical services. The level of payment, which is to be decided by regulation, may be lower than that received by physicians.

Credentialing

Professionalization entails obtaining official approval of individuals to practice their professions and official approval of training programs from government, recognized professional organizations, or both. Both professions and State Governments issue credentials. Although it has never actively taken part in the credentialing process, the Federal Government has an inherent interest because Federal programs that pay for the services of health professionals require standards for their performance. As noted earlier, recognition was achieved by nurse midwives, pediatric nurse practitioners, and child health associates in 1971 from their professional groups. Certification, the process by which nongovernmental agency grants official recognition, was achieved later. A national certifying examination for physicians' assistants was initiated in 1973. It was developed and is updated annually by the National Board of Medical Examiners and administered by the National Commission on Certification of Physicians' Assistants (*137*). The American College of Nurse Midwives certifies nurse midwives by means of an examination after they complete an accredited program (*138*). Pediatric nurse practitioners can voluntarily obtain certification on the basis of a competence examination from the American Nurses Association or the National Board of Pediatric Nurse Associates and Practitioners (*139*).

Health professional training programs are accredited by professional organizations. The accrediting body for nurse midwifery programs is the American College of Nurse Midwives. Programs at the master's level can also obtain approval from the National League for Nursing, but approval is not required. The Council on Allied Health Education and Accreditation of the American Medical Association is the national accrediting body for child health associates and other physicians' assistants. The American Nurses Association accredits certificate nurse practitioner programs and the National League for Nursing accredits master's level nurse practitioner programs that are components of degree granting programs.[11]

Permission to practice a health profession (legal recognition) is granted by State licensure. The provisions of medical and nursing practice acts

[11] Private communication with the Division of Nursing, Bureau of Health Manpower Department of Health, Education, and Welfare, March 1980.

vary widely among the States. All State medical practice acts, nevertheless, restrict the right to perform all medical and surgical procedures to legally qualified physicians. In addition, State laws have historically limited the legal rights of physicians to delegate medical tasks. The development and utilization of new health professions made it necessary for the States to give them legal recognition, or the new professional would be open to charges of practicing medicine without a license and the responsible physician would be subject to charges of promoting the illegal practice of medicine (*140*).

The legal recognition of the new health professional varies by professional type and by State. All States, however, have similar laws and regulations that tie the medical activities of nurse midwives and physicians' assistants (including child health associates) directly to those of the physician, and limit the services new health professionals can provide (*141*).

A principal difference between nurse midwives, nurse practitioners, and physicians' assistants statutes, and general health statutes. Two States had first licensed in their capacity as nurses under State practice acts. Some States require an additional license for nurse midwives, pediatric nurse practitioners, and other nurse practitioners before they can practice. Other States require less significant changes in regulatory statutes.

Laws and regulations governing the practice of physicians' assistants, including child health associates, had to be developed because it is a completely new profession (*142*).

Nurse Midwives

A 1976 survey of State and other jurisdictions by the American College of Nurse Midwifery showed that almost all States and jurisdictions had laws pertaining to the practice of nurse midwifery. The States legally recognized nurse midwives in statute, rules and regulations, or both, or by accepting the joint statements of State professional organizations with defined standards for nurse midwifery practice. The statutes in 16 States were specific to nurse midwifery. In other States the legal bases were statutes regulating another health profession, lay midwife statutes, physicians' assistants statutes, and general health statutes. Two States had no legal basis for nurse midwifery and five States restricted nurse midwifery practice because their Attorneys General found the practice of nurse midwifery in conflict with existing laws. (*143*) (See table 6.)

As of 1980, laws or regulations specific to nurse midwifery practice have been established by 16 more States—Alabama, Alaska, Colorado, Delaware, Hawaii, Idaho, Indiana, Maryland, Massachusetts, Michigan, Mississippi, North Carolina, Oregon, Rhode Island, South Carolina, and Washington (*144*).

Standards for nurse midwifery practice, such as licensure, are currently set in many states by statutory agencies which may or may not have representation from nurse midwifery. Utah recently became the first State to establish a separate Board of Nurse Midwifery.[12]

[12] Private communication with the American College of Nurse Midwifery, February 1980.

TABLE 6. Legal Bases for Nurse Midwifery Practice by State, 1976[1]

Supported by Statute or Regulation	Supported by Interdisciplinary Professional Statement	Found in Statute(s) Governing Other Health Professions or General Health Statute(s)		Prohibited by None, but no clear Prohibition	Ruling of Attorney General Pending Further Legislation	Outlawed
Arizona	Colorado	Alaska: 1	Oklahoma: 4	Kansas	Alabama	None
California	D.C.	Arkansas: 1,2,3	Oregon: 1	North Dakota	Massachusetts	
Connecticut	Maine	Connecticut: 1,3	Rhode Island: 1		Michigan	
Florida	Maryland	Delaware: 2	Tennessee: 1		Missouri	
Kentucky	Mississippi	Georgia: 1	Texas: 4		Wisconsin	
Montana	South Carolina	Hawaii: 2	Washington: 1,2,3			
New Hampshire	Utah	Idaho: 1	Wyoming: 2			
New Jersey		Illinois: 1				
New Mexico		Indiana: 2				
New York		Iowa: 1,3				
Ohio		Louisiana: 1				
Pennsylvania		Maryland: 2				
South Dakota		Minnesota: 1				
Utah		Nebraska: 1,4				
Virginia		Nevada: 1				
West Virginia		North Carolina: 1				

[1] The legal basis for nurse midwifery practice is conceptualized as a continuum ranging from the strongest statutory base (on the left) to outright prohibition (on the right). The ACNM appears to consider a supportive statement by an interdisciplinary professional group as a stronger basis for practice than a nonspecific legislation/regulation.

Source: *Journal of Nurse Midwifery*, Special Issue, "Legislation and Nurse Midwifery Practice in the United States." (Summer, 1976).

Key: 1 = nurse practice act
2 = lay midwife statutes
3 = physician's assistant statutes
4 = general health statutes

Nurse Practitioners

The legal basis for the practice of nurse practitioners is the nurse practice act of each State. Little change has been required in the regulatory statutes of some States. In others, statutory changes that permit nurse practitioners, including pediatric nurse practitioners and school health practitioners, to practice have been needed. They are either "additional act" amendments to nurse practice acts that "expand the definition of nursing to include acts authorized by administrative regulations" or by the enactment of new nurse practice acts that redefine a nurse's activities. The amendments can be in the form of delegatory amendments (also called authorization amendments) or regulatory amendments. Delegatory amendments allow the physician to delegate tasks at his own discretion; regulatory amendments mandate the State medical licensing board or other official body to authorize practice by new health professionals under conditions set by law and regulation. Some States require specific licensure for pediatric nurse practitioners, school nurse practitioners, and other nurse practitioners before they can practice (*145*). Others have not changed their nurse practice acts but have amended their medical practice acts to delegate medical tasks to nurses if the tasks are performed under a physician's supervision.

Even though only a few States specifically require it, supervision of nurse practioners by physicians is implicit in State laws. The degree of required supervision varies among States. Although the requirement for supervision constrains the use of nurse practitioners in physician-poor areas, no State requires onsite supervision for nurse practitioners working in child medical care. No constraints are placed on the number of nurse practitioners a physician can supervise.

The type of nurse practitioner recognized, educational and examination requirements, permitted and prohibited activities, and the prescription of drugs also vary from State to State.

Laws and regulations have undergone amendments which broaden the scope of nursing practice, but the relation of medical diagnosis and medical treatment to the enlarged scope of practice remains imprecise. "What is clear is a trend to allow nurses some diagnostic and treatment authority with nurse practitioners allowed more authority than other licensed registered nurses" (*146*).

Physicians' Assistants—Child Health Associates

New legislation has been required for physicians' assistants to practice in all instances. Most regulation of physicians' assistants has been through amendment of medical practice acts. Child health associates are the exception. The Colorado Child Health Associate Act, for example, defines the scope of their practice and permits them to practice pediatrics under a physician's supervision (*147*). It does not permit more than one child health associate to be employed at any one time by any one physician. It does permit the child health associate to prescribe drugs which have been approved by the Colorado State Board of Medical Examiners.

The legal basis for the practice of physicians' assistants varies with respect to the same characteristics noted for nurse practitioners. A number of States also specifically limit the number of physicians' assistants a physician can supervise; two is usually the upper limit (*148*). Few States allow physicians' assistants and nurse practitioners to prescribe and dispense drugs. Where prescribing is permitted, the conditions are clearly spelled out. (*149*).

Laws and regulations concerning the legal basis for the practice of new health professions vary widely. They are often ambiguous, due to the changing role of the professions, the cumbersome nature of the legal process, and the unwillingness of many State bodies to make specific commitments. It is no wonder, therefore, that uncertainty about licensure laws is one of the primary reasons physicians do not hire new health professionals.

Social and Economic Forces

Recent radical changes in the economic and professional climate of the United States will have an effect on the future of the new health professions. The growth in Federal spending for social good has declined, and is under continuous pressure for further and more rapid decline. As a result, the health sector will have to vie with other social programs for public funds, and competition may become acute among health programs. During this period of economic constraint, recipients of public monies will be scrutinized even more carefully than before.

The number of physicians in the United States has grown dramatically, and the trend is expected to continue at least until 1990 (*150*). New health professionals depend legally and economically on physicians, and some areas of their education and function overlap those of the physician. The future of the new health professional who can provide child and maternal health services is therefore dependent on the supply and distribution of physicians, especially pediatricians, obstetrician–gynecologists, and family and general physicians.

The Number and Distribution of Physicians

The Nation's supply of physicians is expected to be nearly 600,000 by 1990, an increase of about 60 percent from today's level (*151*). Because the number of physicians is expected to increase faster than the general population, the ratio of physicians to population is expected to be 231.3 per 100,000 in 1990 compared to 165.5 per 100,000 in 1974 (*152*). (For the supply of general and family physicians, pediatricians, and obstetrician–gynecologists for 1976 and the projected supply for 1990, see table 7 below.)

The increased number of physicians who provide pediatric and obstetrical services—and, more importantly, their ratio to the population—raises the question of whether a need will be felt for new health professionals who deliver child and maternal health services. If one

TABLE 7. Supply and Ratio of Active Physicians to Population by Selected Specialities: Actual, 1976; Projected, 1990

	1976		1990	
	Number of Physicians	Physicians per 100,000 Population	Number of Physicians	Physicians per 100,000 Population
General Physicians	46,530	22.1	26,350	10.8
Family Physicians	9,480	4.5	56,480	23.0
Pediatricians	22,460	10.4	48,470	19.8
Obstetricians/ Gynecologists	22,080	10.3	33,230	13.6

Source: Interim Report, Graduate Medical Education National Advisory Committee.

assumes the provision of child and maternal health services is the prerogative of the physician, one must determine how many active physicians are needed to provide such care and how many will be available. Two recent projections indicate that a surplus of physicians will be available in 1990. One puts the surplus at 23,000 to 51,400, the other at about 50,000 (*153*).

The adequacy of a numerical accounting of physician requirements is questionable. The real interest of society is in the supply of health services, not in the supply of physicians per se. Factors such as physician productivity and hours worked affect the supply of physician's services and are not fully accounted for in the aforementioned projections. They may not be important in this instance because a decrease in the hours physicians work may be offset by an increase in physician productivity. Many variables that should be included in determining physician requirements, such as scientific advances, changes in quality standards, and organizational changes in the delivery of services, cannot be predicted for accurate quantification.

The Task Force on Pediatric Education estimates that there should be enough pediatricians by 1990 to provide all American children with good medical care, but states that "it is unlikely there will be an excess of pediatricians in 1980 and 1990. Indeed, it is questionable that the health care needs of infants, children, and adolescents in this country can be met adequately in those years." This prediction takes into account such variables as other participants in the delivery of child health care, the changing nature of pediatric practice, the level of fertility, the changing nature of health needs of the pediatric population, and the effects of scientific advances on the demand for services (*154*).

The Task Force does not expect the expanded supply of pediatricians to reduce the need for pediatric nurse practitioners in the future. Instead, it endorses them as important members of the health care team and notes that the preferred model of future practice is pediatric group practice including one or more of the new professionals.

With respect to other providers of child health services, the Task Force reports that about 20 to 30 percent of a family physician's practice is presently concerned with child care. It suggests that the elderly may require more of physicians' time as the Nation's population ages. Nonetheless, the anticipated number of family physicians per 100,000 people may be too large to be compensated for by the aging of the population (*155*). (See table 5.)

Future requirements for obstetrician–gynecologists on a disease-specific basis have been estimated at 26,000, far less than the projected supply of 33,230. A similar estimate is based on the assumption that, by 1990, 5,024 nurse midwives will perform pre-, post- and intrapartum care for normal pregnancies, family planning services, and routine examinations. According to this prediction, the requirement for obstetrician–gynecologists will be lowered to 24,000 (*156*).

The American College of Obstetrics–Gynecology agrees that the number of obstetrician–gynecologists will increase by 1990. "The increasing numbers. . . reduce any substantial demand for other health care professionals to provide services at the physicians' level."[13] It also notes that current efforts to determine future physician requirements lack technical sophistication and that no current methodology is completely satisfactory (*157*).

Some authorities contend, on the basis of the medical market place, that the expected rate of increase in the physician population will decrease the patient load per physician and thereby the number of services provided by each physician (*158*). Because the volume of services provided in a practice is a factor in the employment of new health professionals, they would be adversely affected. It has been suggested, however, that medical care does not operate as a traditional market and physicians can increase the demand for their services. On that premise a decline in the volume of services may not be sufficient to affect the employment and utilization of new health professionals (*159*).

In addition, if the medical care market operates according to the traditional forces of supply and demand, the dramatic increase in the supply of physicians might encourage more physicians to practice in underserved areas and in the primary care specialties, i.e., family practice and pediatrics. Evidence on this theory is still inconclusive (*160*).

The current uneven distribution of physicians by specialty and geographic location has been stressed in legislation and in numerous analyses and reports (*161*). Until now, increasing the number of physicians has done little to equalize physician distribution. In fact, the ratio of primary care physicians to 100,000 population fell from 42.1 in 1963 to 39.0 in 1976 (*162*). The Interim Report of the Graduate Medical Education National Advisory Committee states "in spite of a 31 percent increase in the aggregate supply of active physicians over the 1965–75 decade, the specialty and geographic distribution of physicians and

[13] Private communication with Warren H. Pear of the American College of Obstetricians and Gynecologists, March 1980.

assurance of equitable access to services by all segments of the population has caused continuing concern" (*163*).

Acknowledging the limitations of current measures of physician distribution, the report notes that the ratio of pediatricians to 100,000 population ranges from 3 in South Dakota to 17 in Maryland, with a national average of 8.9. The ratio of obstetricians–gynecologists to 100,000 population ranges from 3 in South Dakota to 16 in Maryland, with a national average of 8.3. Family and general physicians, of all medical specialties, have the most uniform distribution among States (*164*). The disparity in physician concentration within States and between rural and urban areas has led to the designation by DHEW of some areas as being short of health manpower (*165*).

Distributional problems will probably continue in the near future. However, increases in physician supply may be of such magnitude as to cause more physicians to locate in areas with lower population densities than before, even though the available evidence indicates that fees increase as the density of the population increases (*166*). Preliminary evidence suggests that board certified specialists, including pediatricians and obstetricians–gynecologists, are opening practices in towns of small and medium size (*167*). Information about rural and inner city areas is not available. The current supply of physicians may not be large enough to warrant emigration out of a specialty or location, but the projected supply of physicians might be sufficient for diffusion to occur.

Disease Prevention Efforts

The growing national interest in illness prevention may also affect the future of new health professionals who deliver child and maternal care. The 1975 National Conference on Preventive Medicine (*168*) has been followed by a series of significant meetings on the prevention of disease and injury and the promotion of health (*169*).

Congress has demonstrated a similar concern in the 1974 National Health Planning and Development Act (*170*), which requires Health Systems Agencies to include the prevention of disease in their agendas. The goals stated in the Act include a reduction in the infant mortality rate from the current rate of 15.1 per 1,000 (*171*), or fewer than 18 deaths per 1,000 live births for any health service area or population group. The National Health Services Research, Health Statistics, and Health Care Technology Act of 1978, as amended (*172*), emphasizes the need for health services research in prevention of disease disability and premature deaths.

Nongovernmental groups have also increased their activities in prevention. For example, Blue Cross and Blue Shield plans have sponsored health education programs.

Federal Trade Commission

Federal Trade Commission (FTC) efforts to increase competition among health care providers (and thereby increase patient access and lower the costs of health care) will affect the future of the new health

professionals. The FTC argues that physician control of entry to practice may insulate physicians from competitors, including less expensive alternative providers. Although such restrictions may attempt to ensure quality, they may not provide consumers with consistently lower cost and greater choice among services of acceptable quality (*173*).

The FTC has examined a number of issues, including the relation of physician dominance of Blue Shield plans to the costs of health care and restriction of the ability of new health professionals and other nonphysician providers to provide health care. It questions whether denial of reimbursement to new health professionals may be influenced by the disproportionately large representation of the medical profession on decisionmaking boards. At a recent meeting of the Health Care Financing Administration, a direct correlation was reported between physician control of Blue Shield boards and fee level, thus confirming one of the FTC concerns. The FTC is also examining the control of hospital privileges that may hinder nurse midwives and other professional groups from practicing in hospitals.

PUBLIC POLICY ISSUES

This section presents the major public policy issues in the debate surrounding the use of new health professionals for the delivery of child and maternal health services. A position on the issues is not taken, but the pro- and cons of each issue are argued. Additional supporting data are in the body of the paper.

The pivotal issue is the role of new health professionals—especially pediatric nurse practitioners, school nurse practitioners, nurse midwives, and child health associates—in the promotion of child health and continued public support of these new health professionals. The new health professional is assumed to function in a team configuration. A debate on the critical issue of independent practice requires different evidence.

The advantages and disadvantages of three alternative public policies for promoting child and maternal health services by new health professionals are set forth. They are as follows: funding programs to train new health professionals to provide child and maternal health services, financing the provision of these services by new health professionals through Federal and Federal–State medical care programs, and clarifying the legal processes that govern the practice of new health professionals.

Although the arguments about each have not been weighted, it is recognized that some are of greater importance than others. Furthermore, they must be assessed with respect to the two distinct and, at times, contradictory policy goals: improving access to and distribution of services and reducing the escalation of health care costs.

The evidence presented for each issue generally relates to new health professionals who receive extensive and comprehensive training in the provision of child and maternal health services, not specifically to pediatric nurse practitioners, school nurse practitioners, child health associates, or nurse midwives. Therefore the reasons for and against an

issue may vary in degree of relevance for each category. The arguments presented may not apply equally to other new health professionals who deliver child and maternal health services.

The three direct ways that government can promote the use of new health professionals who provide child and maternal care are not mutually exclusive, but can be used in tandem. Other public initiatives, which will not be discussed in detail, can indirectly encourage their optimal utilization. Health maintenance organizations tend to use new health professionals more often and more efficiently than any other form of medical practice; team training stimulates the effective use of new professionals in team configurations. New health professionals have demonstrated exceptional capabilities and interest in the provision of preventive services. Nevertheless, support for or opposition to any of these approaches cannot be based solely on their effects on new health professionals because these strategies have profound effects on other segments of the health care system.

Question: In the interest of promoting child and maternal health, should there be continued public support of new health professionals who provide care to children and women of childbearing age?

The available evidence indicates that new health professionals trained in the delivery of health services to children and women of childbearing age can deliver a wide range of specific services at least comparable in quality to the same services provided by physicians. The evidence is strongest with respect to the quality of services delivered in the primary care physician's office and prepaid group practices. New health professionals have been shown to improve the health status of children and women of childbearing age, to improve the continuity of care, to assess normal and abnormal physical findings in children and women of childbearing age, to gather data as well as physicians, and to communicate and empathize with patients more effectively than physicians.

Studies on physician acceptance show that most primary care physicians accept the concept of new health professionals who deliver child and maternal health care. They are sufficiently responsive to the concept to generate a demand for the services of new health professionals. Even nurse midwives, who have had difficulty in obtaining the expressed approval of obstetrician–gynecologists, enjoy a good labor market. The exact future demand, however, is difficult to predict because it is related not only to the supply, demand, and distribution of health practitioners, but to the entire health care delivery system and forces external to the system.

Consensus is equally positive with regard to patient acceptance of new health professionals who provide child and maternal health services. Acceptance has consistently been reported for care given by new health professionals by patients at different socioeconomic levels and in most practice settings, particularly clinic and prepaid group practices. Patient satisfaction is augmented when patients receive a sense of acceptance of the new health professionals by the physicians.

Another attribute of new health professionals who provide care to children is their ability to increase the availability of children's health

services while maintaining the quality of the care provided by a practice.

Accordingly, the issues of quality of care, physician and patient acceptance, and productivity have been resolved in favor of new health professionals. Although many studies of these issues suffer from methodological faults and more rigorous investigation may be warranted, no contrary results have yet been found.

Physician and patient acceptance of new health professionals, the quality of care they deliver, and productivity have been demonstrated for a limited set of services including well-child care, the management of minor illnesses, and family planning. The competence of new health professionals may not necessarily be confined to these activities. Their participation in such activities may reflect the attitudes of patients and physicians and the physicians' unwillingness to delegate further responsibilities.

The services delegated to the pediatric nurse practitioner, the school nurse practitioner, the child health associate, and the nurse midwife constitute the largest part of primary care, pediatric practice, and obstetrical practice. A large percentage of the physician's time is spent on well care and care of minor problems, which new health professionals are qualified to provide. By employing new health professionals, patients may receive more attentive care for such conditions, and physicians will have more time to concentrate on patients who require their special knowledge and skills.

As a result of the Government's growing concern with escalating health costs, the cost-effectiveness of new health professionals is probably the paramount argument for advocating continued public support of these professions. The cost of training one physician from 1969–1979 was $40,000–$60,000 per annum. Federal costs for training a new professional amounted to about $10,000–$20,000 per annum. The new health professionals are also cost-effective in medical practices. Some of the savings can be passed on to the public. By replacing a physician with a new health professional, society can save approximately $33,000 per annum, based on current differences in employment costs and current differences in amortized training costs.

Despite the fact that specific estimates of savings are based on only a few careful studies and must be treated with caution, the training and salary cost differentials between new health professionals and physicians are large .

Any savings to a practice, however, may be retained solely by the employer (physician or institution) and may not be used to reduce the health costs of patients or taxpayers. In addition, the ability of new health professionals against the need for other social services. By 1990 the supply their safeguards for providing quality care and supervision, and by delegating inappropriate activities to the new health professional.

If the expected dramatic increase in the supply of physicians creates a competitive market, physicians who employ new health professionals to provide child and maternal health services may choose to pass the savings on to the consumer. Physicians' fees do not traditionally respond to market forces. A report of the Commission of Wage and Price Stabilization and other studies find that physician supply has little bearing on fee

structure and income. As the supply of physicians grows, market forces may encourage physicians to reconsider their fee structures.

Growing acknowledgment that Federal health expenditures will decline in the near future results in weighing the support of new health professionals against the need for other social services. By 1990 the supply of physicians is expected to be adequate, or according to some theorists, too large. Not only are the absolute numbers of general and family physicians, pediatricians, and obstetrician-gynecologists expected to grow significantly, but the ratio of physicians in these specialties to the population is likewise expected to rise.

The strongest argument for discontinuing public support of new health professionals is this growth in the number of physicians—if one assumes physicians should be the primary providers of this care. Not only will a large number of family physicians, pediatricians, and obstetrician–gynecologists be practicing in 1990, but the anticipated increase in the aggregate supply of physicians may encourage other specialists to provide ambulatory child and maternal care as a result of competition within their specialties. Therefore, it may be unnecessary to use new health professionals to provide these services.

On the other hand, physician supply is not to be equated with physician requirements. No method of projecting physician requirements has been sufficiently developed to assess all the factors (many of which are not quantifiable) that influence such requirements. Many factors, like scientific advances, changes in the organization of health care delivery, and changing incidence of certain diseases cannot be predicted, but influence the need for health care. For example, when the American Academy of Pediatrics considered the nonquantifiable factors, as well as absolute numbers of pediatricians, it concluded there will not be an excess of pediatricians in 1990. The Academy noted that pediatric nurse practitioners working in teams with pediatricians deliver optimal pediatric primary care.

In addition, the projections of physicians do not include a long-term perspective of specialty supply. A recent study reports that one-sixth of the physicians trained in primary care specialties, including pediatrics, switched to nonprimary care specialties within five years of completing residency training.

Using physician requirements as the criterion for determining the adequacy of supply of child and maternal health services ignores society's real interest, which is the availability of physician (or health) services, not physicians per se. It also assumes that maternal and child health services should be provided by the most highly qualified provider, i.e., the physician. (Whether or not the family physician is as highly qualified as a pediatrician to provide pediatric care, or as highly qualified as obstetrician–gynecologists to provide maternal care, is important but is not in the scope of this paper.) Regardless of which medical specialties are best qualified to provide child and maternal care, the training of the provider is of peripheral interest when the focus is on determining adequacy of supply. The essential requirement, then, is that a child or maternal health service be of acceptable quality. The supply of physicians is therefore of minor consequence in assessing the issue of public support for qualified

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new health professionals, as they have been shown to provide care comparable in quality to that provided by physicians for certain conditions.

An increase in the number of physicians providing child and maternal care does not necessarily lead to an equitable distribution of such services. The current inequitable distribution of physicians has been documented exhaustively. The lack of available child and maternal health service for some populations continues to be a matter of concern. Moreover, a substantial increase in supply does not ensure that physicians will practice in underserved areas or deliver care to some population groups, such as the poor and socially deprived. Even with existing legal and reimbursement barriers, new health professionals have provided child and maternal health service in rural and inner-city areas. In some areas they serve as the only source of care. New health professionals are the most economically feasible providers of care in sparsely settled locations that cannot economically support physicians but can support new health professionals.

Preliminary findings indicate, however, that board-certified physicians, including pediatricians and obstetrician–gynecologists, were practicing in nonmetropolitan areas in response to supply that exceeded demand during the 1970's. Board-certified pediatricians and obstetrician–gynecologists were more frequently found in small towns—even with populations as low as 2,500 to 5,000—in 1977 than in 1960. Evidence of physician dispersion into underserved areas was not found.

Finally, the ability of new health practitioners to provide preventive services, patient education, and counseling indicates continued public interest. If, as anticipated, major Federal intervention in prevention occurs in the near future, sufficiently trained health personnel may not be available to participate. Physicians will probably not be able to meet this need immediately. Other efforts to increase the availability of preventive services delivered by physicians, such as incorporating the skills and knowledge basic to prevention into medical school curricula, may require an extended period of time to be adopted. New health professionals may offer a short-term, and perhaps a long-term, answer to the need for preventive services.

Question: Is funding training programs an efficient way for Federal and State governments to promote new health professionals who provide child and maternal health services?

Public funding of training programs is the least controversial way to promote new health professionals who provide child and maternal health services. Many obstacles are involved in changing current payment practices and laws and regulations regarding new health professionals. Although all indications point to a decrease of public support for physicians who provide child and maternal care, the practicality of the educational approach persists and is not negated by this action.

The cost of training new health professionals is quite low. In fiscal year 1978 total Federal payments to all programs for training all categories of nurse practitioners, physicians' assistants, and nurse midwives were less than 25 million dollars. Funding mechanisms already exist. The nature,

scope, and quality of education received by new health professionals prepares them to provide needed child and maternal health services; the brevity of training programs permits a relatively quick increase in the supply of services.

Federal and State assistance for training new health professionals who provide child and maternal care also profits medical schools and nursing schools that offer training programs. The fiscal requirements of maintaining and expanding class size of existing programs and of initiating new programs present barriers to educators. State education budgets put similar strains on community colleges to initiate and maintain training programs; Federal assistance is often required.

Critics of funding training programs fear that long-term Federal support might result in restrictive Federal regulation, curriculum control, and other restraints on academic freedom. They also note that Federal funding may be a public extravagance and that the funding abilities of the private sector and State and local governments have not been thoroughly tapped. In 1978, funds provided by the Division of Nursing, Bureau of Health Manpower of DHEW, supported only about half of the operating programs for nurse practitioners, including pediatric programs. State, municipal, and institutional funds and tuition also supported such programs. Moreover, the large number of applicants to training programs for new health professionals may indicate that suspending Federal support would have only a marginal effect on the number of entrants into the programs. However, the fiscal crisis of State and local governments, the possible loss of capitation support for medical and nursing schools, and the general economic conditions resulting from inflation are likely to make Federal funds critically important to the survival of future programs.

Critics also note that the faculties of some programs to train new health professionals, especially those in nonmetropolitan areas, do not have the opportunity to learn of new developments in their field, thus diminishing the educational value of the training program. If provisions for continuing the education of faculty members were included in the funds for training programs, faculties would get experience in the most recent diagnostic tools, preventive measures, and treatment modalities, thereby improving training program resources and the educational process.

The variety of curricula among training programs for pediatric nurse practitioners, nurse midwives, and school nurse practitioners permits innovation and flexibility, but leads to uneven quality in training. Although most educators and other authorities do not think Government should play a role in curriculum development, public policy could encourage and support relevant professional organizations in the development of sound curricula.

Present Federal practices of funding training programs for new health professionals usually limit the support to a given number of years. For instance, a pediatric nurse practitioner program usually receives Federal funds for a maximum of 5 years. This relatively short time period may preclude the development, maintenance, and strengthening of stable programs.

The Federal Government has always used criteria that advance health policy in funding training programs. One of the main criteria for funding programs that train new health professionals is that they train their graduates to provide primary care. Because Federal policy is geared to the unresolved problem of providing child and maternal health services in medically underserved areas, the greater question arises as to whether it should be used to specify that graduates practice in such areas. The 1976 Health Professions Educational Assistance Act, as amended by the 1977 Health Services Extension Act, includes provisions to encourage nurse practitioners to practice in health manpower shortage areas upon completion of their training. Insufficient evidence has been found to gauge the success of a particular program, but some evidence suggests that more new health professionals trained in schools that emphasize rural practice move to rural areas than those trained in schools without such emphasis. Mechanisms that link the funding of training programs to the program's ability to place its graduates in underserved areas need further development.

Question: Should the payment practices of Federal and Federal–State medical care programs be restructured to encourage the use and acceptance of new health professionals who provide child and maternal health services?

The Federal Government has been severely criticized for being hesitant to pay for the services of new health professionals, even though it has been the major supporter of programs to train such professionals for the past 9 years. Remedies for the present fragmentation in resource development and financing are being addressed by, for instance, the Rural Health Services Act of 1977, New or revised laws and regulations, however, are necessary to end this discrepancy in public policy planning.

In addition to achieving some measure of equilibrium in health policy, changes in current payment practices for the services of new health professionals have functional advantages. New health professionals have been restricted in the provision of child and maternal health services by the present payment policies of public and private payers, which tie payment for their services to physicians' services and physician supervision. As a result of the complex regulations governing payment for health services provided by new health professionals, particularly in noninstitutional settings, Federal and Federal–State medical care programs do not pay for many of the maternal and child health services new health professionals provide. This policy applies equally to payment practices of private payers, which often replicate those of the Government. Many physicians are, therefore, reluctant to hire new health professionals or to make optimal use of their services. If barriers to payment are eliminated, both the cost-effectiveness of new health professionals and their attractiveness as employees should increase. However, any cost savings from using new health professionals may not necessarily be passed on to the patient or the taxpayer by the employer. If the medical market becomes competitive, the employer of a new health professional will have a

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competitive edge over other physicians and may choose to share his extra profits in the form of lower fees.

The payment mechanism can also be a practical way to promote the use of new health professionals who provide child and maternal health services in underserved areas. Lowering the barrier brought about by current payment practices may bring more new health professionals to inner-city and rural areas and may act as a restraint on the exodus of physicians from rural areas. Payment levels to physicians in rural underserved areas are usually lower than elsewhere. The additional profit obtained by employing a new health professional may provide the necessary stimulus to remain in the area.

Paying for the child and maternal health services provided by new health professionals has professional implications as well. The recognition supplied by this action advances the position of the new health professionals by advancing their autonomy. It may spur States to modify restrictive practice acts which deter professionalization.

Opponents to liberalizing current payment practices for services provided by new health professionals are most troubled by its implications of an open-door policy for all providers. This policy need not be effected if the merits of each type of provider are individually determined for payment purposes.

Increased Federal expenditures also alarm some critics. If new health professionals had been paid at the same payment level as physicians, Federal expenditures under Medicare and Medicaid would have increased by about 0.1 percent in fiscal year 1979. If payment was at a lower level, the increase in expenditures would, of course, have been lower. Total health expenditures might be lower in the long run, if, for example, new health professionals focus on preventive measures.

A question concerning modifications in current payment practices is whether payment for maternal and child health services provided by new health professionals should be at the same level as those provided by physicians. Much of the rationale for advocating a similar payment for the same service duplicates that discussed earlier. In summary, the new health professional provides quality care, is accepted by patients and physicians, is productive, is cost-effective, and improves access to care.

Furthermore, a lower payment level (a higher one has not been proposed) for maternal and child health services provided by new health professionals would add complexity and cost to an already costly and complex system. Costs associated with administering and implementing two payment levels might offset the savings resulting from a reduced payment level.

A lower payment level may not provide a sufficient incentive for physicians to employ new health professionals and may create incentives for physicians to perform tasks they could delegate in order to obtain the higher payment. If Federal payments for services of new health professionals were set at a lower level than for those of private insurers, physicians would have an incentive to reduce their Federal patient load, or to see only patients paid for by Federal and Federal–State medical care programs and leave other patients to the attention of new health professionals.

Most significantly, two payment levels suggest a two-tiered system of care, which has profound psychological, sociological, economic, professional, and political consequences.

Proponents of a lower payment level for child and maternal health services provided by new health professionals than those provided by physicians believe that identical services cannot be provided by individuals with different levels of training. Others contend that if a service is delivered at an acceptable level it is the same service. Cost-savings obtained from employing a new health professional may benefit physicians only, and the patient or society at large. The physician may use the extra monies the new health professional generates to increase his income or to maintain his current income and reduce his working time.

Another question is whether payment for maternal and child health services provided by new health professionals should be restricted to those who practice in underserved areas and with underserved populations. Limiting payment in this way would aid present efforts to attract providers to such areas and populations, and would decrease the burden on Federal expenditures if universal payments were provided. In a time of limited funds, a modified payment structure for services to specific populations might be politically easier to achieve than a more comprehensive one.

Another aspect of this question is the rural and urban split. Payment for the service of new health professionals might be restricted to underserved rural areas. The average Medicaid annual expenditure per child is $76 in central city areas and $5 in rural areas, which creates a greater need in rural areas. Rural practitioners have complained of payment levels as low as one-seventeenth of urban practitioners' despite high rural electric rates, transportation costs, and the salary differentials needed to attract personnel. On the other hand, data on urban underserved areas are included in localities with high reimbursement levels. Current data are county-based, which makes it impossible to prove there are lower reimbursement levels in underserved areas of adequately served counties. In either case, new health professionals and society in general might be ill-served if payment depended on place of birth or place of practice. In order to maintain democratic standards, payment should be provided for a service irrespective of where it is delivered.

A third payment question is how much physician supervision should be required for new health professionals? The only fact specific to this question which has not been discussed previously revolves around the quality of care. Close supervision may be needed to maintain high quality and provide patients with assurance of the physician's involvement, but the evidence suggests that quality of care is not superior where close supervision occurs.

Questions: Would restructuring the current system governing the legal practice of new health professionals who provide child and maternal health services promote their optimal use? How should changes be effected? What changes should be made?

The Federal Government does not have an active role in governing the legal practice of new health professionals who provide child and maternal

health services, but maintains an interest because Federal programs that pay for the services of new health professionals impose standards for payment. The payment practices of Medicaid (a Federal–State medical care program) must be in accord with State laws. Although there are those who advocate direct involvement of the Federal Government in the credentialing process, it is most likely that the responsibility will remain with the States, at least in the near future.

Most experts agree that State laws and regulations governing the practice of new health professionals who provide child and maternal health services have been a major constraint on the practice of these professionals. Indeed, the evidence on their past and current performance is merely indicative and not conclusive due to the State provisions that link the practice of the new professionals to that of physicians. In addition, the great variation in the specifics of the laws and regulations among the States causes confusion about the rights of the new professionals, and limits their geographic mobility. The ambiguous language in many of the practice statutes inhibits the delegation of tasks, because physicians are concerned with improper delegation and violation of the law.

State rules and regulations vary in myriad other dimensions, including the regulatory process, the regulation agency, specification of prohibited and permitted activities, physician supervision, the degree of physician supervision, and policies concerning prescribing and dispensing drugs.

In some States, certain categories of new health professionals are not legally recognized for reimbursement. A striking example of the restrictive effects of this provision occurs in New York State, which has no legislation or regulations governing nurse practitioners. The result is that nurse practitioners cannot legally bill patients for any medical services they provide to Medicaid recipients, thus lessening their attractiveness to physicians as employees.

Changes in current practices are necessary if the optimal use of new health professionals is to be achieved. The method for bringing about such changes, however, is not as evident as the need for reform. Resistance may come from competing political interests within States and the medical profession, which is usually consulted in the development of State laws and regulations governing the practice of new health professionals.

A wide variety of opinion has been expressed about the preferred method of public credentialing for new health professionals. Current state practices include the licensure of new health professionals in the same manner as physicians and nurses (e.g., the Child Health Associate in Colorado), authorization amendments to nurse practice acts and medical practice acts, and regulatory amendments to nurse and medical practice acts. If the current practices are to be modified, the comparative merits of these methods are at issue.

The advocates of licensure note that it has traditionally afforded the highest form of professional recognition and ensured the public of good care. Opponents note it is extremely restrictive, does not necessarily ensure high quality care, promotes high fees, and restricts innovation. Authorization amendments, which permit supervisory physicians and

employers to determine the functions of the new health professionals, allow for flexibility in their utilization and place decisions regarding their use in the private sector. Regulatory amendments are now most often used by States. They give the States considerable control over the practice of the new health professional through systems of precise laws and regulations which some believe afford maximum protection against abuse.

The content of State rules and regulations also affects new health professionals who deliver child and maternal health services. The issue of physician supervision is one example. Services of Child Health Associates, who are licensed to practice in Colorado, must be provided under the "direct and personal supervision" of a physician. On the other hand, only 11 States mention physician supervision of nurse practitioners, and the supervision requirements for nurse midwives vary widely from State to State. In Connecticut they practice in "collaboration with and under the direction of a physician"; in Kentucky "in collaboration with a physician"; in South Dakota no mention is made of physician supervision.

How broad should the scope of practice be? Under some State laws nurse practitioners can perform medical diagnoses, treatment, and prescribe and dispense drugs. Medical diagnosis and treatment is ill defined in much of the current legislation. Prescribing and dispensing drugs is particularly controversial; it hinges on the scientific qualifications of new health professionals and the need for this treatment modality, particularly in areas short of physicians.

As many other issues arise concerning the content of rules and regulations as variations exist in their content among the States. They indicate the complexity of restructuring such laws and regulations despite the need for clarification of the process that governs the practice of new health professionals.

Proposals for more radical changes in current credential practices include relying solely on certification by other professionals, adoption of Federal licensing standards, integration of State licensing boards within a single agency, and institutionalization of licensure.

Summary

Throughout the United States a growing number of new health professionals are practicing, with varying kinds of training and experience. Many of these professionals are capable of meeting some of the health care needs of women and children. However, because these professionals are relatively new and cannot be classified in the traditional terms of "doctor" or "nurse" their position vis-a-vis the health care system, the legal system, and the general public is ambiguous.

This paper provides a historical perspective on the development of these professions, followed by data on their current supply, distribution, training programs, and practice patterns. Next, information is presented on their professional competence and recognition and on the changing social context in which they exist and function.

Then the pivotal issue of continuing public support of new health professionals who provide care to children and women of childbearing age

is discussed. Finally, alternative means of public support are considered. No conclusions are drawn; instead, the focus is on sharpening the issues for public debate.

REFERENCES

(1) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 4, 1978.

(2) Silver, G. A. "Mother and Child Care: One View of Current Problems." *The Midwife in the United States: Report of a Macy Conference.* New York: Joshua Macy, Jr. Foundation, 1968, p. 3.

(3) Leland, R. G. *1931: Distribution of Physicians in the United States* Chicago. American Medical Association, 1935. *1958: American Medical Directory,* 20th ed. Chicago: American Medical Association, 1958.

(4) Public Law 88–129, 1963.

(5) Institute of Medicine. *A Manpower Policy for Primary Care,* Washington, D.C:. National Academy of Sciences, 1978.

(6) The ratio of general and family physicians had decreased from 82.4 per 100,000 population in 1931 to 36.2 per 100,000 in 1967. The ratio of pediatricians had risen from 3.1 in 1931 to 7.2 in 1967, and that of obstetrician–gynecologists from 5.2 in 1931 to 8.0 in 1967. Sources: R. G. Leland, *1931: Distribution of Physicians in the United States,* Chicago: American Medical Association, 1935, *1967: Distribution of Physicians, Hospitals and Hospital Beds in the U.S.* Chicago: American Medical Association, 1968.

(7) Hunt, E. *Recent Demographic Trends.* Children's Bureau Publication Washington, D.C.: Government Printing Office, 1966.

(8) Stead, E. A. Keynote Address, Continuing Medical Education Seminar for Physicians and Physicians' Assistants, The Bowman-Gray School of Medicine of Wake Forest University, Winston-Salem, North Carolina, May 23, 1979.

(9) Silver, H. K., L. C. Ford, and L. R. Day. "The Pediatric Nurse Practitioner Program: Expanding the Role of the Nurse to Provide Increased Health Care for Children," *Journal of the American Medical Association* 204, April 22, 1968.

(10) Silver, H. K., L. C. Ford, and L. R. Day. "A Program to Increase Health Care for Children: The Pediatric Nurse Practitioner Program," *Pediatrics* 39: 756–760, May 1967.

(11) Fisher, D. W. and S. Horowitz. "The Physician's Assistant: Profile of a New Profession." In *The New Health Professionals: Nurse Practitioners and Physician Assistants,* Ann A. Bliss and Eva D. Cohen, eds. Germantown, Maryland: Aspen Systems Corporation, p. 40, 1977.

(12) Stead, E. A., Jr. "The Duke Plan for Physician's Assistants," *Medical Times* 95: 40–48, January 1967.

(13) Pelligrino, E. D. "Forward." In *The New Health Professionals: Nurse Practitioners and Physicians' Assistants.* Ann A. Bliss and Eve D. Cohen, eds. Germantown, Maryland: Aspen Systems Corporation, p. xvi, 1977.

(14) Silver, H. K. and J. E. Ott. "The Child Health Associate: A New Health Professional to Provide Comprehensive Care to Children," *Pediatrics* 50: 1–7, January 1973.

(15) "The Training and Responsibility of the Midwife," a Macy Conference held May 9–13, 1966, Lake Como, Italy. *The Midwife in the United States,* Report of a Macy Conference. New York: Josiah Macy, Jr. Foundation, 1968.

(16) Hellman, L. M. "Country Reports: United States" in *The Training and Responsibility of the Midwife,* A Macy Conference held May 9–13, 1966, Lake Como, Italy. New York: Josiah Macy, Jr. Foundation, pp. 150, 151, 1967.

(17) American College of Obstetricians and Gynecologists, (ACOG), The Nurses Association of the American College of Obstetricians and Gynecologists (NAACOG), and the American College of Nurse-Midwives (ACNM). Joint Statement on Maternity Care," *ACOG Newsletter,* February 1971.

(18) American Nurses Association officially recognized nurse midwifery in 1967. See Donna M. Ledney, "Nurse-Midwives: Can They Fill the OB-Gap?" *RN,* 38–45, January 1970.

(19) AMA Council on Medical Education. "Essentials of an Approved Educational Program for the Assistant to the Primary Care Physician," 1971.

(20) Guidelines on Short-term Continuing Education Programs for Pediatric Nurse Associates," Joint Statement on the American Nurses Association, Division on Maternal and Child Health Nursing Practice, and the American Academy of Pediatrics, *Pediatrics* 41: 1075–1079, June 1971.

(21) Lubic, R. W. *Nurse-Midwifery in Context.* New York: Maternity Center Association, p. 4, 1977.
(22) Public Law 92–150, 1971; Public Law 92–157, 1971; Public Law 92–585, 1972.
(23) Public Law 95–63, 1975; Public Law 94–484, 1976.
(24) Public Law 94–484, 1976.
(25) Public Law 95–83, 1977.
(26) Public Law 95–63, 1975.
(27) Public Law 95–103, 1978.
(28) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 41, 1978.
(29) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 1, 4, 1978.
(30) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 6–7, 1978.
(31) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 14, 1978.
(32) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 18, 1978.
(33) Long, W. N. "The Role of a Nurse-Midwife," *Journal of the Medical Association of Georgia,* 56–58, February, 1974.
(34) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II," p. 71, November 1978, September 1978.
(35) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 7, 1978.
(36) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 11, 1978.
(37) Graduate Medical Education National Advisory Committee. *Interim Report to the Secretary of DHEW.* Washington, D.C.: Department of Health, Education, and Welfare, p. 257, 1979.
(38) American College of Nurse-Midwives. "Core Competencies in Nurse-Midwifery: Expected Outcomes of Nurse-Midwifery Education," *Journal of Nurse-Midwifery* 24: 32–36, January–February 1979.
(39) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 2, 1978..
(40) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, Table 20, p. 19, 1978.
(41) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 19, 1978.
(42) Sultz, H. A., M. Zielezny, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase I," DHEW Publication No. (HRA) 76–43, p. 7, March 1976.
(53) Sultz, H. A., M. Zielezny, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase I," DHEW Publication No. (HRA) 76–43, p. 71, March 1976.
(44) Sultz, H. A., M. Zielezny, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase I," DHEW Publication No. (HRA) 76–43, p. 94, March 1976.
(45) *The Obstetric–Gynecologic Nurse Practitioner: Role Definition, Role Description, and Guidelines for Educational Development* (The American College of Obstetricians and Gynecologists and the Nurses' Association of the American College of Obstetricians and Gynecologists, 1979).
(46) Manisoff, M. and L. Davis. "Family Planning Nurse Practitioners in the United States," *Family Planning Perspectives* 7: 154–157, 1975.
(47) Manisoff, M. "Impact of Family Planning Nurse Practitioners." *Journal of Obstetrics, Gynecology and Neonatal Nursing* 8: 73–77, 1979.
(48) Association of Physician Assistant Programs. *National Health Practitioner Program: 1979–80.* Arlington, Va.: Association of Physician Assistant Programs, 1979.
(49) Miller and Byrne, Inc., "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education and Welfare, Final Report, January 1978.
(50) Estimates calculated for "Health Care Providers in Pediatrics," (Background paper for the Graduates Medical Education National Advisory Committee) Spring 1979 (mimeographed).
(51) Sultz, H. A., M. Zielezny, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase I," DHEW Publication No. (HRA) 76–43, p. 11, March 1976.
(52) Sultz, H. A., M. Zielezny, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase I," DHEW Publication No. (HRA) 76–43, p. 71, March 1976.

(53) Sultz, H. A., M. Zielezny, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase I," DHEW Publication No. (HRA) 76-43, p. 74, March 1976.
(54) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 5, November 1978, September 1978.
(55) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 54, November 1978, September 1978.
(56) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 21, November 1978, September 1978.
(57) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 66, November 1978, September 1978.
(58) The Association of Faculties of Pediatric Nurse Associate/Practitioner Programs, "Behavioral Objective and Curriculum Content for Short Course Pediatric Nurse Associate/Practitioner Educational Programs," p. 5 (mimeographed), 1974.
(59) The Association of Faculties of Pediatric Nurse Associate/Practitioner Programs, "Behavioral Objective and Curriculum Content for Short Course Pediatric Nurse Associate/Practitioner Educational Programs," p. 82 (mimeographed), 1974.
(60) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 100, November 1978, September 1978.
(61) Ruby, G. "Physician Acceptance of Nurse Practitioners and Physician Assistants," (Background paper for *A Manpower Policy for Primary Health Care* of the Institute of Medicine) June 20, 1977 (mimeographed).
(62) American Academy of Pediatrics. "Projecting Pediatric Practice Patterns," *Pediatrics* 62: 625-680, October 1978 (supplement).
(63) Silver, H. K. Letter to the Honorable Robert D. Ray, Governor of Iowa, Des Moines, Iowa.
(64) Silver, H. K., J. B. Igoe, and P. R. McAtee. "The School Nurse Practitioner: Providing Improved Health Care to Children," *Pediatrics* 58: 580-584, October 1976.
(65) Clark, D. T., Ed. D., Testimony to the Select Panel for the Promotion of Child Health presented in Denver, Colorado, September 27, 1979.
(66) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 67, November 1978, September 1978.
(67) *National Health Practitioner Program Profile: 1979, 1980.* Arlington, Virginia: Association of Physician Assistant Programs, p. 35, 1978; H. K. Silver and J. E. Ott, "The Child Health Associate: A New Health Professional to Provide Comprehensive Health Care to Children," *Pediatrics* 51: 1-7, January 1973.
(68) Colorado Revised Statutes (Child Health Associate Law) #12-31, 101-115, 169.
(69) *Institute of Medicine, Advancing the Quality of Health Care.* Washington, D.C.: National Academy of Sciences, 1974.
(70) McNerney, W. J. "The Quandary of Quality Assessment," *The New England Journal of Medicine:* 295: 1505-1511, December 30, 1976.
(71) Cohen, E. D., et al. "An Evaluation of Policy Related Research on New and Expanded Roles of Health Workers," Final Report. National Science Foundation Grant No. APR 73-07904 AOR, p. 78, October 1974.
(72) Sox, H. C., Jr. "Quality of Patient Care by Nurse Practitioners and Physician's Assistants: A Ten-Year Perspective," *Annals of International Medicine* 91: 459-468, September 1979.
(73) Cohen, E. D., *et al.* "An Evaluation of Policy Related Research on New and Expanded Roles of Health Workers," Final Report. National Science Foundation Grant No. APR 73-07904 AOR, p. 15, October 1974.
(74) Machota, P., J. E. Ott, J. B. Moon, and H. K. Silver. *American Journal of the Diseases of Children,* 125: 199-203, February 1973; Louis L. Fine and Henry K. Silver, "Comparative Diagnostic Abilities of Child Health Associates, Interns and Practicing Pediatricians," *Journal of Pediatrics* 83: 332-335, August 1973.
(75) Duncan, B., A. N. Smith, and H. K. Silver. "Comparison of the Physical Assessment of Children by Pediatric Nurse Practitioners and Pediatricians," *American Journal of Public Health* 61: 1170-1178, June 1971.
(76) Charney, E. and H. Kitzman. "The Child-Health Nurse (Pediatric Nurse Practitioner) in Private Practice: A Controlled Trial," *New England Journal of Medicine* 285: 1353-1358, December 9, 1971; R. Burnip, et al., "Well Child Care by Pediatric Nurse Practitioners in a Large Group Practice: A Controlled Study in 1,152 Preschool Children," *American Journal of the Diseases of Children* 130: 51-55, January 1976.
(77) Day, L. R., R. Egli, and H. K. Silver. "Acceptance of Pediatric Nurse Practitioners," *American*

Journal of the Diseases of Children 119: 204–208, March 1970; R. A. Hoekelman, P. K. Patterson, A. B. Bergman, and R. J. Wedgewood, "Parent Reaction to the Concept of Pediatric Assistants, *Pediatrics* 44: 69–75, July 1969; H. J. Kitzman and A. W. Zimmer, "Pediatric Nurse Practitioners and Well-Baby Care in a Small Rural Community" in *ANA Clinical Sessions*. New York: Appleton-Century-Crofts, 1973.

(78) Hilmar, N. A. and P. A. McAtee. "The School Nurse Practitioner and Her Practice: A Study of Traditional and Expanded Health Care Responsibility for Nurses in Elementary School," *Journal of School Health* 43: 43–41, September 1973; C. E. Lewis, "An Evaluation of the Impact of School Nurse Practitioners," *Journal of School Health* 44: 331–335, June 1974.

(79) Levy, B. S., F. S. Wilkinson, and W. M. Marine. "Reducing Neonatality Mortality Rate with Nurse-Midwives," *American Journal of Obstetrics and Gynecology* 109: 51–58, January 1, 1971.

(80) Slome, C., et al. "Effectiveness of Certified Nurse-Midwives: A Prospective Evaluation Study," *American Journal of Obstetrics and Gynecology* 124: 178–182, January 15, 1976.

(81) Reid, M. L. and J. B. Morris. "Perinatal Care and Cost Effectiveness: Changes in Health Expenditures and Birth Outcome Following the Establishment of a Nurse-Midwife Program," Medical Care 17: 491–500, May 1979.

(82) Browne, H. E. and G. Isaacs. "Frontier Nursing Service: The Primary Care Nurse in the Community Hospital," *American Journal of Obstetrics and Gynecology*, 124: 14–17, January 1, 1976.

(83) Hellman, L. "Nurse-Midwifery in the U.S.," *American Journal of Obstetrics and Gynecology*, 30: 883–888, December 1976.

(84) *Lubic, R. W. "The Impact of Technology on Health Care-Child-Bearing Center: A Case for Technology's Appropriate Uses," The American Journal of Nurse-Midwifery* 24: 6–10, January, February, 1979.

(85) Yankauer, A. et al. "Performance and Delegation of Patient Services by Physicians in Obstetrics–Gynecology," *American Journal of Public Health* 61: 1545–1555, August 1971.

(86) Buroch, P. "Physicians' Attitudes Towards Nurse-Midwives," *Nursing Outlook*, 23: 453–456, July 1975; J. C. Record and H. R. Cohen, "The Introduction of Nurse-Midwifery in a Prepaid Group Practice," *American Journal of Public Health:* 354–360, March 1972.

(87) Yankauer, A., J. P. Connelly, and J. J. Feldman. "Pediatric Practice in the United States, with Special Attention to Utilization of Allied Health Workers," *Pediatrics* 45: 521–544, March 1970.

(88) American College of Nurse-Midwives. *Nurse-Midwifery in the United States: 1976–1977.* Washington, D.C.: American College of Nurse-Midwives, p. 3, 1978.

(89) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 37, November 1978, September 1978.

(90) Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 55, November 1978, September 1978.

(91) Association of Physician Assistant Programs, *Profile of the Physician Assistant Students, 1978*, Preliminary Data. October 26, 1979.

(92) Lawrence, R., *et al.:* "Physician Receptivity to Nurse Practitioners: A Study of the Correlates of the Delegation of Clinical Responsibility," 174 (mimeographed); R. C. McCormack, H. M. Allen and E. Livens, "Family Doctors' Use of Office Assistants and Opinion Regarding Nurses in Primary Care," *Southern Medical Journal* 64: 415–481, April 1971; E. Wright, "Family Nurse Clinicians: Physician Perspectives," *Nursing Outlook* 23: 771–773, December 1975; P. K. Patterson, "Physician Response to Delegation of Well-Child Care," *Northwest Medicine* 70: 92–96, February 1971; Sultz, H. A., M. Zielezny, J. Gentry, and L. Kinyon. "Longitudinal Study of Nurse Practitioners, Phase II." p. 27, November 1978, September 1978.

(93) Ruby, G. "Consumer Acceptance of Nurse Practitioners and Physician Assistants," (Background paper for *A Manpower Policy for Primary Health Care of the Institute of Medicine*) p. 1 (mimeographed) January 21, 1977.

(94) Hoekelman, R. A., P. K. Patterson, A. B. Bergman, and R. J. Wedgewood. "Parent Reaction to the Concept of Pediatric Assistants." *Pediatrics* 44: 69–75, July 1969.

(95) Hoekelman, R. A., P. K. Patterson, A. B. Bergman, and R. J. Wedgewood. "Parent Reaction to the Concept of Pediatric Assistants." *Pediatrics* 44: 69–75, July 1969; H. Strunk: "Patients' Attitudes towards Physician Assistants," *California Medicine* 118: 73–77, June 1973.

(96) Merenstein, J. H., H. Wolfe, and K. M. Bakken. "The Use of Nurse Practitioners in a General Practice," *Medical Care* 12: 445–452, May 1974; R. C. Mackay, D. Alexander, and L. J. Kingsbury, "Parent's Attitude Toward the Nurse as Physician Associate in a Pediatric Practice," *Canadian Journal of Public Health* 64: 121–132, March–April 1973; R. A. Hoekelman, "What Constitutes Well-Baby Care?" *Pediatrics* 55: 313–326, March 1977.

(97) Charney, E. and H. Kitzman. "The Child-Health Nurse (Pediatric Nurse Practitioner) in Private Practice: A Controlled Trial," *New England Journal of Medicine* 285: 1353–1358, December 9, 1971.

(98) Burnip, R., *et al.* "Well-Baby Care by Pediatric Nurse Practitioners in a Large Group Practice: A Controlled Study of 1,152 Preschool Children," *American Journal of the Diseases of Children* 130: 51–55, January 1976.

(99) Fine, L. J. "The Pediatric Practice of the Child Health Associate," University of Colorado School of Medicine, Denver, Colorado, 1976 (mimeographed).

(100) Nielson, I. L. "A Midwife Physician Team in Private Practice," *American Journal of Nursing* 75: 1693–1695, October 1975; H. B. Perry. "Team Obstetrics and the Nurse-Midwife" *Primary Care* 3: 387–398, 1976; J. C. Record and H. R. Cohen, "The Introduction of Midwifery in a Prepaid Group Practice," *American Journal of Public Health* 62, March 1972; W. B. Beasley and H. W. Murray, "Family Planning in a Rural Nurse Midwifery Program," *Family Planning Perspectives* 5: 117–123, Spring 1973.

(101) Parmet, W. "Consumer Views of the Impact of Nurse-Midwives," National Center for Health Services Research (Background paper for the Graduate Medical Education National Advisory Committee) August 1978.

(102) Perry, H. B. "Team Obstetrics and the Nurse-Midwife" Primary Care 3: 387–398, 1976.

(103) Rising, S., S. Lindell, and M. Larson. "Childbearing-Childrearing Center," University of Minnesota Evaluation Report, 1976.

(104) Davis, L. and B. M. Katz. "Knowledge and Attitude Toward Nurse-Midwifery Taking Childbirth Education Classes," *Journal of Nurse-Midwifery* 24: 18–26, July–August 1979.

(105) Lawrence, D. "Physician Assistants and Nurse Practitioners: Their Impact on Health Care Access, Costs and Quality," *Health and Medical Care Services Review* 1: 2–12, Feburary 1978.

(106) Record, J. C., et al.: "Provider Requirements, Cost Savings and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 26, June, 1979.

(107) Record, J. C., *et al.*: "Provider Requirements, Cost Savings and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 26, 30–46, June, 1979

(108) Charney, E. and H. Kitzman. "The Child-Health Nurse (Pediatric Nurse Practitioner) in Private Practice: A Controlled Trial," *New England Journal of Medicine* 285: 1353–1358, December 9, 1971.

(109) Record, J. C., *et al.*: "Provider Requirements, Cost Savings and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 64–68, June, 1979.

(110) Record, J. C., *et al.*: "Provider Requirements, Cost Savings and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 78, June, 1979.

(111) Heagerty, M. C., M. T. Grossi, and M O'Brien. "Pediatric Nurse Associates in a Large Official Health Agency—Their Education, Training, Productivity and Cost," *American Journal of Public Health* 67: 855–858, September 1977.

(112) Record, J. C., *et al.*: "Provider Requirements, Cost Savings and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 76, June, 1979.

(113) "The Effect of Task Delegation on the Requirements for Selected Health Manpower Categories in 1980, 1985 and 1990," Final Report Contract No. NIH 72–4406, Department of Health, Education and Welfare, 1974.

(114) Record, J. C., *et al.* "Provider Requirements, Cost Savings, and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 100, June, 1979; The Congressional Budget Office, *Physician Extenders: Their Current*

and Future Role in Medical Care Delivery. Washington, D.C.: U.S. Government Printing Office, p. 26, 1979.

(*115*) Institute of Medicine *Costs of Education in the Health Professions*. Washington, D.C.: National Academy of Sciences, pp. V, XII, and 73, January 1974.

(*116*) Systems Science, Inc. "Nurse Practitioner and Physician Assistants Training and Deployment Study" Contract HRA 230–75–0198. Health Resources Administration, p. 241, September 30, 1976.

(*117*) The Congressional Budget Office, *Physician Extenders: Their Current and Future Role in Medical Care Delivery*. Washington, D.C.: U.S. Government Printing Office, pp. 26–29, 1979.

(*118*) Record, J. C., et al. "Provider Requirements, Cost Savings, and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 100, June, 1979.

(*119*) The Congressional Budget Office, *Physician Extenders: Their Current and Future Role in Medical Care Delivery*. Washington, D.C.: U.S. Government Printing Office, p. 18, 1979.

(*120*) Record, J. C., *et al.* "Provider Requirements, Cost Savings, and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 102, June, 1979.

(*121*) Mendenhall, R. G., et al. "Collection and Processing of Baseline Data for the Physician Extender Reimbursement Study," Final Report. Contract No. HEW–05–100–75–0034, p. 140, August 31, 1978.

(*122*) Record, J. C., *et al.* "Provider Requirements, Cost Savings, and the New Health Practitioner in Primary Care; National Estimates for 1990." Final Report for Contract #231–77–0077 to the Division of Medicine, Bureau of Health Manpower, Department of Health, Education, and Welfare. p. 27, June, 1979.

(*123*) *Economic Aspects of the Childbearing Center*. Maternity Center Association, 48 East 92nd Street, New York, New York. July 1, 1979 (mimeographed).

(*124*) Memorandum, "Medicare Relations Which Present Reimbursement Claims for Services Unless a Physician is Physically Present," from Director, Bureau of Health Insurance, Social Security Administrator to Assistant Secretary of Health, U.S. Public Health Services. July 30, 1975.

(*125*) Memorandum, "The Physician's Assistant," from Medical Services Administration, Social and Rehabilitation Service to State Agencies Administering Approval Medical Assistance and Public Assistance Plans, July 31, 1972.

(*126*) Miller and Byrne, Inc. "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education, and Welfare, Final Report, p. 144–145, January 1978.

(*127*) Miller and Byrne, Inc. "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education, and Welfare, Final Report, p. 145–154, January 1978.

(*128*) Public Law 45–210.

(*129*) Federal Regulations—Title 42, Chapter 4, Part 481 (general certification); Part 504 (nurse midwife provisions) in Federal Register, Friday, July 14, 1978.

(*130*) Public Law 95–457.

(*131*) H.R. 35–31; incorporated into H.R. 4000.

(*132*) Miller and Byrne, Inc. "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education, and Welfare, Final Report, p. 151–152, January 1978.

(*133*) State of Maryland, House of Delegates, House Bill No. 1556, to take effect January 1, 1979. (An Act concerning Health Insurance—Benefits for Services of Nurse–Midwives by adding to Article 48A of the Insurance Code and by repealing and reenacting Article 43 of the Annotated Health Code of Maryland).

(*134*) The Legislature of the State of New Mexico, 34th Legislature, 1st Session, House Bill 261, Approved March 15, 1979, Section 59–18–19 NMSA 1978 (Laws 1963, Chapter 286, Section 1, amended).

(*135*) Insurance Department, State of Utah, Findings and Order File No. 78–36, April 27, 1979.

(136) State of Mississippi, H.B. No. 496.

(137) *National Health Practitioner Program Profile: 1979, 1980.* Arlington, Virginia: Association of Physician Assistant Programs, p. 35, 1978; H. K. Silver and J. E. Ott, "The Child Health Associate: A New Health Professional to Provide Comprehensive Health Care to Children," *Pediatrics* 51: 13–14, January 1973.

(138) Burst, H. V. "The American College of Nurse-Midwives: A Professional Organization," *Journal of Nurse-Midwifery* 25: pp. 4–6, January–February 1980.

(139) MacQueen, J. C. "The Challenges of the PNP/A Movement," *Pediatric Nursing* (July–August 1979): 31–35.

(140) Miller and Byrne, Inc., "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education, and Welfare, Final Report, p. 5, January 1978.

(141) Ruby, G. "The Future Role of New Health Practitioners," in *Physicians and New Health Practitioners: Issue for the 1980's*, a staff paper of the Institute of Medicine. Washington, D.C., National Academy of Sciences, p. 39, May 1979.

(142) Miller and Byrne, Inc., "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education, and Welfare, Final Report, pp. 6, 33, and Appendix to Report, January 1978.

(143) *The Journal of Nurse-Midwifery*, Special Issue "Legislation and Nurse-Midwifery Practice in the U.S." Summer 1976.

(144) American College of Nurse–Midwives, "Patterns of Legislation and Actual Practice of Nurse–Midwifery in the United States," January 1980 (mimeographed).

(145) Miller and Byrne, Inc., "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education, and Welfare, Final Report, pp. 33–74, January 1978.

(146) Weisfeld, N. "Licensure of Primary Care Practitioners," (Background paper for A Manpower Policy for Primary Health Care for the Institute of Medicine) p. 29 (mimeographed) January 11, 1977.

(147) Child Health Associate Law 12–31–101–115, 1969.

(148) Miller and Byrne, Inc., "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education, and Welfare, Final Report, pp. 107–113, January 1978.

(149) Miller and Byrne, Inc., "Review and Analysis of State Legislation and Reimbursement Practices of Physician Assistants and Nurse Practitioners," HRA Contract 230–77–0011, National Center for Health Services Research, Department of Health, Education, and Welfare, Final Report p. 74, 120, January 1978.

(150) Graduate Medical Education National Advisory Committee. *Interim Report to the Secretary of DHEW.* Washington, D.C.: Department of Health, Education, and Welfare, p. 257, 1979.

(151) Graduate Medical Education National Advisory Committee. *Interim Report to the Secretary of DHEW.* Washington, D.C.: Department of Health, Education, and Welfare, p. XV, 1979.

(152) Graduate Medical Education National Advisory Committee. *Interim Report to the Secretary of DHEW.* Washington, D.C.: Department of Health, Education, and Welfare., p. 156, 1979.

(153) Scheffler, R. M., S. G. Yoder, N. Weisfeld, and G. Ruby. "Physicians and New Health Practitioners: Issues for the 1980's," *Inquiry* 16: p. 4, Fall 1979.

(154) The Task Force of Pediatric Education, *The Future of Pediatric Education: A Report.* Evanston, Illinois: Task Force of Pediatric Education, p. 45, 48, 1978.

(155) The Task Force of Pediatric Education, *The Future of Pediatric Education: A Report.* Evanston, Illinois: Task Force of Pediatric Education, p. 46, 1978.

(156) Roddy, P. "Requirements for Ob–Gyns for 1975–1990," Presented at Annual Meeting of Operation Research Society, New Orleans, Louisiana, May 1979.

(157) Pearse, W. H. "Doctors and Patients in Obstetrics and Gynecology: the Next 15 Years," *The American Journal of Obstetrics and Gynecology* 125: 361–367, June 1, 1976.

(158) Klarman, H. *The Economics of Health.* New York, Columbia University Press: Chapter I, 1965.

(159) Pauly, M. "The Economics of Moral Hazard: Comment," *American Economic Review* 58: 531–537, June 1978; R. Evans, "Supplier-Induced Demand—Some Empirical Evidence and Implications," in *The Economics of Health and Medical Care, Proceedings of a Conference Held by the International Economic Association* of Tokyo. M. Perlman, ed, London: MacMillan, 1974.

(160) Scheffler, R. M., S. G. Yoder, N. Weisfeld, and G. Ruby. "Physicians and New Health Practitioners: Issues for the 1980's," *Inquiry* 16: p. 5–6, Fall 1979.

(161) Public Law 94-484 (1976); Institute of Medicine, *A Manpower Policy for Primary Health Care.* Washington, D.C.: National Academy of Sciences, 1978; Institute of Medicine, *Medicare Medicaid Reimbursement Policies.* Washington, D.C.: National Academy of Sciences, 1976.

(162) United States Department of Health, Education, and Welfare, Health Resources Administration, "Supply and Distribution of Physicians and Physician Extenders: Staff Paper Prepared by the Graduate Medical Education Advisory Committee," DHEW Pub. No. 78–11, pp.8–9.

(163) Graduate Medical Education National Advisory Committee. *Interim Report to the Secretary of DHEW.* Washington, D.C.: Department of Health, Education, and Welfare, p. IV, 1979.

(164) Graduate Medical Education National Advisory Committee. *Interim Report to the Secretary of DHEW.* Washington, D.C.: Department of Health, Education, and Welfare, p. 85–86, 1979.

(165) "Health Manpower Shortage Areas. Criteria for Designation," Federal Register, Tuesday, January 10, 1978, Part II.

(166) Scheffler, R., L. Paringer, G. Ruby, and R. Lis. "The Impact of Economic Factors on the Specialty and Spatial Distribution of Physicians," a paper prepared for the Graduate Medical Education National Advisory Committee. November 1978. (mimeographed) (Journal of Health Education and Policy—to appear).

(167) Data presented by Al Williams of Rand Corporation to the Council of Deans, Association of American Medical Colleges, Washington, D.C., November 1979.

(168) Task Force Reports, *Preventive Medicine U.S.A.* New York, N.Y.: Prodist, 1976.

(169) Weiss, S. M., ed., *Proceedings of the National Heart and Lung Institute Working Conference on Health Behavior.* DHEW Publication No. (NIH) 76–868, 1975; Task Force Report, "Respiratory Diseases," DHEW Publication No. (NIH) 77–1248, 1977; National Center for Health Services Research, "Research Proceedings Series: Consumer Self-Care in Health," DHEW Publication No. (HRA) 77–3181, 1977; E. O. Nightingale, *et al., Perspectives on Health Promotion and Disease Prevention in the United States,* Institute of Medicine, Publication No. 78–001 Washington, D.C.: National Academy of Sciences, 1978; Institute of Medicine, *Conference on Health Promotion and Disease Prevention* Publication No. 78–002 and 78–003. Washington, D.C.: National Academy of Sciences, 1978.

(170) Public Law 638–43.

(171) *Federal Register,* October 19, 1979.

(172) Public Law 95–623.

(173) Federal Trade Commission, Office of Policy Planning and Evaluation, Briefing Book for the Commission's Policy Review Session on Health Services, June 5, 1979.

NURSING

by
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INTRODUCTION

Nurses are a steady and eminently qualified pool of professionals for the delivery of health services to women and children. Traditionally they have been central to the delivery of these services and perhaps have more contact with patients than any other single group of health professionals. Despite this, a general lack of understanding of the varying roles that nurses fill and the range of implications of educational differences within the profession exists. The purpose of this paper is to examine these matters as a basis for discussing the issues related to the provision of more comprehensive health services to mothers and children.

Approximately 1,400,000 registered nurses practice in the United States and 62 percent of these are employed in hospitals. About 8 percent work in public health settings where a significant part of their work concerns maternal and child health. Most nurses are white, married females, working for salaries that compare poorly with salaries in less skilled and less responsible male-dominated occupations.

Although this profession is dominated by nurses who are diploma graduates of hospital schools, they are gradually being replaced by graduates from associate degree and baccalaureate programs, many of whom seek advanced degrees.

Although 30 percent of nurses are not working, the profession represents a significant but underutilized resource. The range in levels of training and practice has placed nurses and the nursing profession in an ambiguous position within the United States health care system. (See Tables 1 and 2.)

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TABLE 1. Distribution of Nurses by Sex, Race, Marital, and Employment Status—National Sample Survey—1977

	Number	Percentage
Total RN's with current licensure to practice in the United States	1,401,633	100.0
Female	1,344,642	98.1
Male	26,991	1.9
Racial or ethnic minority	86,901	6.2
Black	35,041	2.5
Hispanic	19,623	1.4
American Indian	2,803	0.2
Asian	29,434	2.1
Unreported	21,024	1.5
Married	1,009,176	72.0
Never married	196,228	14.0
Widowed or divorced	154,180	11.0
Actively employed	981,143	70.0
Mean salary (Full time staff duty)	*$12,252 per year	

*This figure varies according to region and has increased about $1,000.00 since 1977.

Source: Moses, E. and Roth, A., "Nurse Power," *American Journal of Nursing*, October 1979.

TABLE 2. Comparison of 100 Percent Male Job Starting Salaries with Beginning Staff Nurse Salaries in Denver, 1979

	Monthly Starting Salary		Dollar Differences	
100 Percent Male Job Classifications	1978	1979	Month	Year
Sign Painter	1,245.00	1,361.00	297.00	3,564.00
Painter	1,088.00	1,191.00	127.00	1,524.00
Tree Trimmer	1,040.00	1,164.00	100.00	1,200.00
Tire Serviceman	1,017.00	1,113.00	49.00	588.00
Parking Meter Repairman	994.00	1,113.00	49.00	588.00
Graduate Nurse I (Beginning Staff Nurse)	929.00	1,064.00		

Source: *Nurse*, 1979.

HISTORY OF NURSING

The ambiguity of the current position of nurses and the nursing profession is rooted in the history of the profession and women's rights. Nursing as a defined occupation in the United States is more than 100 years old. The importance of nursing for the health of women and children is reflected in the fact that the earliest formal training programs were started by female physicians at the Women's Hospital in Philadelphia and the New England Hospital for Women and Children in Boston. However, the opening of hospital schools of nursing in New York,

New Haven, and Boston marked the recognition of nursing as a distinct and more generalized occupation.

Despite early attempts to formalize the training of a new group to deliver health services, the training of nurses remained largely apprenticeship and was geared to the health problems of the times. These health problems were predominantly acute illnesses, fever, infectious diseases, and trauma, which required intensive bedside care. Rooted in the traditions of the church and military centers, apprenticeship training instilled commitment to the institution and unquestioning deference to physicians despite the fact that nurses often made critical decisions and performed medical services. As the one caretaker who was always there, the hospital nurse was summoned to substitute for every sort of absence or emergency from the lowliest housekeeping task to delivering babies, dispensing drugs, and administering anesthesia.

Public health nursing was developed early in this century as a response to conditions in the major cities. Industrialization together with the influx of nearly 30 million immigrants between 1840 and 1910 spawned tenements, filth, and major epidemics with concomitant high mortality and morbidity. Lillian Wald's well-known Henry Street Settlement established at the turn of the century in New York provided clinical and visiting nurse services—most of them to women and children. In addition, Wald began the first school nursing program in 1902. During September of that year, 10,567 children were sent home from New York City schools for health reasons. One year later when the school nursing program was introduced only 1,101 such absences occurred (*1*).

In addition, Wald contracted with the Metropolitan Life Insurance Company to provide visiting nurse services to policyholders. Starting in 1901, the service grew rapidly and extended to other cities. By 1912, 589 Metropolitan Life Insurance centers were in existence and insurance records showed a 7-percent decline in mortality over a 7-year period among the policyholders. The most significant decline was 19 percent among infants in the first year of life.

Although the first service offered by the public health nurses was the administration of bedside care, they soon moved to preventive care and teaching. In 1913, the Bureau of Child Hygiene was established in Newark, New Jersey, and offered free well-child care. The centers were staffed by graduate nurses who taught infant hygiene, health supervision, and proper care of infants. By 1915, despite poor living conditions, the infant mortality rate in the areas serviced by the clinics was significantly lower than in other areas of the city. The nursing staff was thereafter increased to 12 nurses and served half the city with the backing of only 4 half-time physicians. The public health nursing movement grew rapidly and by 1919 nearly 9,000 nurses were engaged in visiting or public health nursing in the country (*1*).

During the 1920's the duties of the public health nurse included the management of predominantly publicly sponsored infant welfare stations, investigation of home conditions that affected infant mortality, case-finding, and investigation of communicable disease. Privately sponsored visiting nurse associations continued to provide bedside care.

The multiplicity of activities and the increase in public health nursing agencies sometimes were met with antagonism by physicians who perceived them as infringements on their territory. The history of public health legislation in the 1920's reflects the growing conflict between the public health movement and the American medical establishment. The Sheppard Towner Act of 1921 was passed despite opposition from the American Medical Association and resulted in the establishment of the Children's Bureau. However, the Biggs Health Center Bill to provide State aid to local communities for public health nurses, physical examination, and school health services was defeated because of similar opposition (*2*). During the Sheppard Towner Act, child health agencies existed in 45 States and Hawaii. From 1923 to 1929, public health nurses made more than 3,000,000 visits to mothers and 4,000,000 infants received their services. The infant death rate fell from 100 per 1,000 in 1915 to 69 per 1,000 in 1928. Despite these advances, however, efforts to renew the Act were defeated in 1929 as a result of political conservatism and continued opposition from the American Medical Association (*1*).

In 1933, as a response to the critical needs engendered by the Depression, the Federal Relief Administration, the Civil Works Administration, and the Children's Bureau separately launched a series of State and local nursing programs that met the needs of unemployed nurses and at the same time provided sorely needed community services. The Social Security Act of 1935 further involved the Government in the provision of both health services and the training of health personnel and has continued this policy to the present.

NURSING EDUCATION AND CAREER DEVELOPMENT

The work of public health nurses required special types of training beyond the therapeutic principles taught in hospitals and included course work in sociological and economic conditions and cultural beliefs of patient populations. Initially, such training was received in-service. However, by 1916 approximately eight colleges or universities offered these courses.

Although nursing was perceived as a low-status occupation, early training programs attracted many women with impressive ability who provided leadership in the development of nursing as a profession.

In 1919, the Goldmark Committee, established by the Rockefeller Foundation to study nursing education, recommended steps that would "professionalize" nursing. These recommendations included special training beyond the basic nursing program for all supervisors, instructors, and public health nurses; the development of university schools of nursing and the development of training programs for subsidiary workers; and legislation to define, regulate, and license such subsidiary workers.

By 1925, 25 colleges or universities had schools or departments of nursing. The early university programs were developed in response to the Goldmark report to prepare diploma nurses for public health nursing,

supervision, and teaching. All basic training in nursing was offered in hospital schools of nursing where nursing students were perceived as a source of cheap labor. By 1927 registration in nursing programs peaked, which created a surplus of nurses. The Depression that followed left many nurses without employment and the number who enrolled in both training programs and hospital schools rapidly declined.

World War II created a great demand for nurses which continued into the mid-1940's when a severe shortage of both physicians and nurses occurred. This shortage was created by a combination of factors. Antibiotics and the new post-war technology coupled with hospital insurance had changed the spectrum of health and illness, of the care required, and of the personnel needed.

Until the introduction of sulfa drugs in the 1930's the possibilities for medical intervention were limited. For many illnesses, nursing care was critical. In the post-war era of new technology, drugs, and knowledge, physicians were able to work relatively independently of nurses, and their contribution to the outcome of illness suddenly diminished. Bedside care became less important to the public, to physicians, and to nurses. Growing job dissatisfaction and increases in alternative employment opportunities led to declines in the number of hospital-employed nurses and in student enrollment. At the same time, a more affluent and informed public was demanding more and better health services.

Efforts to set and maintain standards in nursing education were first initiated in 1917 by the National League for Nursing Education, and, with the restructuring of other national nursing organizations in 1950, the League became the accepted accrediting body. As standards for curriculum and faculty improved, hospital administrators increasingly found the diploma schools a financial liability and one by one they were closed. In 1927, 2,000 hospital training programs existed and only 367 were functioning by 1977 (*1*). Their place was partly taken by baccalaureate programs designed to provide basic nursing education rather than advanced preparation for teaching and supervision. These baccalaureate programs, however, did include training in public health nursing in their curricula. The shortage of nurses became increasingly acute as the numbers of hospitalized patients increased with the availability of hospital insurance. In an effort to meet this demand, 2-year terminal associate degree programs were developed in junior and community colleges and admissions to these programs quickly exceeded both diploma and university level programs. Nurses with associate degrees were originally conceived of as technical nurses whose tasks were delegated by nurses with baccalaureate degrees. Baccalaureate degree nurses were responsible for care planning and for the psychosocial aspects of care. In practice this differentiation of roles did not occur.

By 1971, little difference was found in the functions of associate degree nurses, diploma nurses, and bachelor's degree nurses within the hospital setting (*3*) and by 1977, "the original conceptualization of the associate degree as both technical and terminal [was] to all intents and purposes abandoned" (*4*). Furthermore, the lack of provision for career mobility for associate degree and diploma nurses was causing serious problems. By

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1977, 7 percent of associate degree nurses had advanced to further training in bachelor's degree programs, although they encountered considerable difficulty in the process. Bachelor's degree programs had increased to 349 and associate degree programs had increased to 656. The trend toward the education of nurses in institutions of higher learning has continued, as have the efforts to standardize credentials based on the level of education and specialty.

A 1965 position paper issued by the American Nurses' Association stated, "The education for all those who are licensed to practice nursing should take place in institutions of higher learning; minimum preparation for beginning professional nursing practice should be baccalaureate degree; minimum preparation for beginning technical nursing should be an associate degree" (*5*). In 1978, the Association set two goals: the naming and describing of two levels of nursing practice by 1980 and the implementation of the classification based on credentials by 1985. Implicit in these resolutions were different career entry credentials both for the nurse with the bachelor's degree and the nurse with less than a bachelor's degree (*6*). A third resolution passed at the 1978 convention specifically called for career mobility within the profession. This led to the first concerted effort on the part of the baccalaureate programs to facilitate the acquisition of Bachelor of Science in Nursing degrees by bachelor's and associate degree nurses.

PROBLEMS IN EDUCATION AND UTILIZATION OF NURSES

Problems in the systems of nursing education and employment are related to the strivings of the profession, the legitimate requirements of the universities and accrediting agencies, and the lack of coordination between nursing educators, nursing and hospital administrators, and physicians.

Before World War II physicians taught medical science in almost all schools of nursing. As more nurses became qualified for faculty appointments, fewer physicians were asked to teach nurses. By 1960, the National League for Nursing actively discouraged the involvement of physicians in nursing education. It was believed that nurses who qualified for faculty positions should be able to teach all the medical courses necessary for the practice of nursing.

These efforts to establish nursing as a profession, the reduction in clinical experience in the baccalaureate and associate degree programs, and the rise of classroom learning have had a deleterious impact on the relationship between nursing and medicine.

By 1965 health manpower and training to meet the increased needs of the public were critically short of the demand. Nursing and medicine were hardly communicating with each other and each profession independently began to develop new types of education programs to prepare persons to fill the breach.

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Clinical Nurse Specialists, Physicians' Assistants, and Nurse Practitioners

Master's programs in nursing began to emphasize preparation in the clinical specialities rather than in teaching, supervision, and nursing service administration. Clinical nurse specialists were prepared to use advanced theoretical knowledge to help nursing service personnel to better assess and meet patient and family needs. Unfortunately these nurses met with difficulty. They often lacked adequate hospital experience and were unprepared to cope with the bureaucracy and problems of management. Because they were employed in staff rather than line positions, they had no authority in the hospital hierarchy. Furthermore, their efforts to initiate changes to improve patient care were often perceived as threatening to the power of entrenched nursing administrators which created a rift between nursing service and nursing education personnel. In addition, physicians were not prepared either to have their orders questioned or to condone alternative methods of care.

These difficulties might have been minimized if nursing administrators and physicians had participated more in planning for the education and employment of clinical specialists. Although programmatic changes have alleviated some of the problems, acceptance of the role on the part of physicians and hospital administrators has been slow. Currently many of the large hospitals employ clinical specialists and find them effective. Regrettably, however, many hospital administrators continue to regard them as unnecessary and expensive frills.

While the nursing profession was attempting to upgrade its contribution to the health services, physicians were attempting to cope with the health care crisis by training nurses to perform some of their functions. In 1965, Loretta Ford and Henry Silver started the first pediatric nurse practitioner program. The movement caught on quickly and nurses soon demonstrated that they could not only take medical histories, do a physical examination, and manage well-child care, but they could also manage minor acute illnesses and stabilize chronic illnesses. Soon such responsibilities were extended to adult care, and in 1970 a Family Nurse Practitioner Program was started at the University of North Carolina at Chapel Hill.

Initially, practitioner programs were begun under the aegis of private physicians or medical schools. Most of the early programs recruited diploma graduates with considerable experience and did not offer academic credit. The curriculum was developed and taught by physicians and focused largely on physical diagnosis and the management of minor illness. Applicants were generally required to have a physician as a sponsor who would serve as preceptor and guarantee employment when the program was completed.

In rural areas, where physician shortages existed, an effort developed to recruit nurses who would return to these areas. The nurses selected were leaders, nonconformists, and risk takers. These nurses did well in undertaking their new roles; patient acceptance was excellent, and physicians working with nurse practitioners became enthusiastic supporters.

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Many nurse educators took a dim view of the practitioner movement. At the 1970 American Medical Association meeting, the announcement that 10,000 nurses would be trained as physicians' assistants met with resentment by the nursing establishment. Nurses had barely achieved professional status and they objected to both the title and the concept of being "physicians' assistants."

Nevertheless, nurses flocked to the programs. To the associate degree or diploma nurse who would have difficulty in obtaining a baccalaureate degree, the program offered not only education but also a chance to improve her status. For nurses at all levels it provided medical content necessary for effective practice that the basic nursing programs lacked. The role also offered increased autonomy and an escape from the grinding rotating shifts of the hospital.

In 1968, the Division of Nursing in the Department of Health, Education, and Welfare funded some expanded role training programs on an experimental basis and in 1975 under the Nurse Training Act, a special section of the Division was assigned to nurse practitioner training. The guidelines for such training specified physician participation in training programs (preferably as codirector), affiliation with schools of nursing, or at least a qualified nurse as codirector, and set the standards for acceptable program length and amount of clinical practice.

Despite the initial reluctance of nurse educators to accept the concept of nurse practitioner, graduate programs began to include this training because they were partly attracted to grants and to commitment to the idea.

In 1970, Yale University began the first program to prepare pediatric nurse practitioners at the master's degree level. In 1977, 61 master's degree programs were offered to nurse practitioners and certificate programs began to decrease.

Acceptance of nurse practitioner programs at the master's degree level has led to changes in undergraduate curricula. Increasingly, training in complete physical assessment of the patient is being included in baccalaureate programs, and the stethoscope has replaced the cap as a badge of office. (For a more complete discussion of the status of nurse practitioners and nurse midwives, please see "New Health Professionals in Child and Maternal Health" in this series.)

The foregoing developments have posed problems for nursing faculties who must incorporate these new skills into their teaching. A growing concern has surfaced among nurse educators that they are not receiving sufficient ongoing clinical experience to adequately teach or to maintain basic skills. The current system, however, almost excludes nurse educators from clinical practice. Ideally, they should have the same access to clinical practice as physician faculty members in medical schools, which means that they should also have hospital appointments.

Although joint appointments have been established for nurse educators in some large medical centers, this procedure is rare for both administrative and fiscal reasons. The hospitals are autonomous and current billing procedures do not permit third party reimbursement for nursing services of even the most advanced kind.

Understandably, nursing schools are reluctant to release faculty members for patient care without reimbursement either from the hospital or through direct billing of the patient.

Another hurdle to overcome in nursing education is the development of faculties that can meet academic standards. As noted previously, the first nurse educators were diploma graduates who received advanced training in teaching at the baccalaureate level. As the baccalaureate programs were developed to provide basic education for nurses, the master's degree programs were developed to prepare teachers and administrators, and a master's degree became the accepted credential for teaching in university schools of nursing. During the seventies the profession again sought to improve the status of both its practitioners and educators. The master's degree programs began to focus on the preparation of clinical specialists, and the larger university schools have begun to require that their nursing faculty have doctorates.

In 1920, Columbia University offered the first doctorate program specifically for nursing, and by 1976, 14 programs were in existence. These programs were supported at first by predoctoral research fellowships and later by the Nurse Scientist Program which heavily subsidized the teaching programs of the related disciplines and made it financially attractive for teaching institutions to enroll nurses. The first nurses to earn doctorates did so primarily in the fields of education and were primarily concerned with providing academic leadership and improving nursing training and service. Thereafter, an increasing number sought doctorates in other fields, especially in the social sciences and in public health. In the late seventies, a markedly increased number of doctoral programs were offered in schools of nursing that emphasized the development of a body of nursing knowledge with its own theoretical base.

Table 3 shows the distribution of the various levels of educational attainment among nurses in the United States in 1977.

The nurse doctoral survey conducted in 1979–80 by the American Nurses Association identified approximately 3,000 nurses with doctorates (*7*).

TABLE 3. The Distribution of Educational Levels of Nurses in the United States in 1977

	Number	Percentage
Diploma	939,094	67.0
Associate Degree	154,180	11.0
Baccalaureate	245,286	17.5
Master's Degree or Doctorate	63,073	4.5
Total	1,401,633	100.0

REGIONAL PLANNING AND HOSPITAL NURSING

In 1971, the American Medical Association recommended the development of regionalized hospital-based newborn intensive care units

(NBICU), and a later committee representing several physicians' associations identified three levels of perinatal care within regions (*8*).

In the level I or community hospitals, the number of deliveries is too small either to justify expensive and complex obstetric and newborn care or to attract the necessary medical and nursing staff. In urban areas, such services are or ideally should be consolidated in one or two hospitals.

Level II hospitals, or the larger urban and suburban hospitals where the majority of deliveries occur, ideally provide a full range of services for uncomplicated procedures and for the majority of complicated obstetrical problems and certain neonatal illnesses. Level III hospitals provide consulting services to other hospitals and take referrals of complicated cases. Such hospitals are often, but not always, large university medical centers.

Although recommendations for services for older children have not been similarly regionalized, the same typology can be applied to pediatric care. Level I community hospitals may have so few pediatric patients that children are admitted to rooms within adult care units. In urban areas with several hospitals, pediatric facilities are often centralized in one institution and level III hospitals offer the most sophisticated pediatric care.

Nurses at level I medical units may have limited training in obstetrical or pediatric care and because of low census have little opportunity to maintain or improve their practice in these fields despite the continuing need for such skills. In level II hospitals, it is recommended that the nursing supervisor of maternal and child services have an advanced degree in obstetric or neonatal nursing, and that at least some of the professional nurses be nurse clinicians or clinical nurse specialists. Because of the shortage of nurses with advanced degrees, these standards will frequently be difficult to meet.

The level III hospitals will have a higher proportion of nurses with bachelor's degrees. Nurse supervisors or clinical coordinators are more likely to hold master's degrees and the director of nursing is almost certain to have a master's degree and sometimes a doctorate. In such a staff a reasonable probability of finding clinical specialists and nurse clinicians exists.

Changing Roles of Hospital Nurses

Whether in effect or at the planning stages, the nursing staff needs of hospitals today are vastly different from what they formerly were. New technologies and complex procedures, the number and variety of medical specialists providing services for the individual patient, and the large number of staff persons and patients within a single hospital require new kinds of nursing specialists.

At the end of the professional spectrum, the roles and responsibilities of the nurse administrator may include planning for future needs, coordination of nursing with other hospital services, and constant crisis intervention in addition to the daily management of a service employing hundreds of personnel with a multimillion dollar budget.

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The nurse clinician is generally a baccalaureate graduate who has received additional preparation in a short-term specialized program such as intensive neonatal care. As a middle level manager, the head nurse holds a central position in the delivery and coordination of care.

> On a hypothetical post partum unit a head nurse may manage an annual budget of $475,000 and direct 30–35 nursing staff members who at the very minimum provide safe care for an average of 24 patients, 24 hours a day every day of the year. She not only sees that patients receive nursing care, but in the physician's absence carries out the medical functions of giving medications, administering treatments, and evaluating the patient for any changes indicating the need for further medical intervention. Providing leadership is also part of her job, so that new grandparents receive explanations when their grandchild is ill, the single parent is not isolated, and siblings share the joy of "having a baby" (*9*).

At the other end of the spectrum are the nurses in traditional roles providing bedside care. However, the bedside care they are currently expected to provide is now highly sophisticated and technologically complex. The nurse is the critical person who translates the orders and procedures of myriad hospital technicians and medical specialists into meaningful procedures for the patient.

Whatever her role, the nurse has responsibilities not only to physicians and hospital administration, but also to patients and their famililies. Although for many patients hospitalization often represents only a brief episode in their lives, the hospital experience may have a determining effect on how they perceive and relate to health services years later.

Nurses are highly effective in providing the psychological and emotional support to patients and families in the life crises which often accompany illness or hospitalization. The importance of this support in the increasingly depersonalized health delivery systems in the United States cannot be overlooked because studies have demonstrated the importance of the relationship between illness and emotional status.

COMMUNITY-BASED NURSING TODAY

Public Health Nursing

The public health nurse was once the key person for maternal and child health care among populations most at risk, but her former role as home visitor and case finder has declined with the introduction of categorical funding, expanded requirements for accountability for time under Medicaid, and expanded services for the elderly. Of particular concern is the decrease in home visits to new mothers during the first postpartum weeks when they are most susceptible to learning about child care. Categorical funding has also led to the development of specialty clinics in the health department.

Since 1972 some health departments have employed nurse practitioners to deliver personal health services in the clinics, and considerable numbers of public health nurses have received in-service education in physical

assessment and screening procedures. This trend toward providing comprehensive primary care in health departments sometimes meets with considerable resistance from private physicians, although in some communities it is well accepted.

School Nursing

The degree of involvement of school nurses with students and faculty varies across the country. In some instances, the school nurse is the dispenser of bandaids and the keeper of health records. In other instances, the school nurse serves as a health educator, student health counselor, and as consultant to staff and faculty in developing health policy.

In some areas, she is paid by the Board of Education, and in other areas, contracts between the Board of Education and the Board of Health provide for full- or part-time nursing services for the schools. If paid by the Board of Education, the nurse is more likely to receive the cooperation of other school staff and faculty, but will be less likely to have the peer support of health department nurses.

Since 1950, the number of nurses employed by the Board of Education has increased sharply; in 1978, over 41,365 nurses reported school nursing as their principal employment.

In 1978, the American Nurses' Association appointed a commission to conduct hearings on the unmet health needs of children and youth in Boston, Atlanta, Los Angeles, Chicago, and Washington, D.C. The major problems identified were venereal diseases and teenage pregnancy, drug abuse, child abuse and sexual exploitation, suicide, physical fitness and accidents, dental problems, nutritional deficiency, developmental disabilities, and chronic disease.

In most cases, the school nurse is in the best position to identify or help the teachers identify children with these problems and to assist the child and family in solving them. Educational opportunities to all handicapped children were generated with the passage of P.L. 94–142 and the role of the school nurse and the need for preparation in both public health and pediatrics became more acute. In some communities, school nurse practitioners have been introduced. A study in Denver in 1972 (*10*) comparing nurse practitioners with regular school nurses noted that nurse practitioners focused more sharply and specifically in their management of pupils' health problems; excluded only about half as many pupils from school; referred about half as many pupils for consultations, care, or further evaluation because their management plans resolved the problems; and were more likely to provide specific advice to parents, resulting in more frequent compliance with the school nurse practitioner's recommendations.

In some areas physicians have opposed employing nurse practitioners in schools. Nevertheless, the school nurse practitioner demonstrates expanded skills in physical assessment, added knowledge of well-child care, and

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ability to identify and assess factors that may cause learning or behavior problems as well as those causing physical disease.

Neighborhood Health Clinics

Comprehensive neighborhood health clinics, which started as demonstration projects by the Office of Economic Opportunity in the mid-1960's, have been another out-of-hospital source of health care for children and have served to augment public health and hospital-based clinics in inner city areas. From the outset, they have relied heavily on nurse practitioners for delivery of services.

Rural Health Services

Rural health services, always scant at best, have decreased with the demise of the family doctor, and despite improved roads in most areas accessibility and use of preventive health services have not improved. The Frontier Nursing Service, which began in 1925, has demonstrated the impact that nursing care can have on rural health problems. However, it has recently been observed that with a decline in the number of preventive home visits by nurses from Frontier Nursing Service because of cost, visits to rural health nursing clinics have also decreased. Medicaid does not pay for preventive visits, therefore many people will wait until they are ill rather than pay out-of-pocket for preventive visits—especially if the clinic is more than 5 miles away.[2]

In the 1970's, rural clinics began under the Division of Indian Health Service, the Appalachian Regional Development Act, and the Migrant Health Act. These clinics, more than the neighborhood health centers, have relied on nurse practitioners to deliver care. In urban health centers physicians are usually available to support the nurse practitioner; however, in rural clinics, nurses may work alone with only telephone contact and a weekly visit from a physician.

Efforts to settle and retain physicians in rural areas have had limited effectiveness. The areas may not be attractive for setting up practice because income, social life, and educational opportunities are limited. Public health services in these areas are also limited.

> ... in such states the public health agency is often dominated by the state medical society which tends to inhibit extension of governmental programs. Many of the rural health departments, moreover are directed by semi-retired physicians who are seeking an easier life and are not inclined to move out and blaze new trails for public health improvements (*11*).

[2]Personal communication with G. Isaacs, January 6, 1980.

TABLE 4. Ratio of Nurses to Population

Set of 10 States by Percentage Rural	Population	Public Health Nurses	Public Health Nurses/100,000 Population
11.4 to 25.1	75,247,000	16,441	21.4
25.5 to 33.4	50,821,000	8,827	7.4
34.3 to 41.7	24,940,000	3,563	14.3
43.2 to 52.5	23,091,000	2,981	12.9
55.5 to 64.8	18,736,000	2,217	11.7

SOURCE: American Nurses Association: *Facts About Nursing*, New York, 1966.

Thus the burden shall continue to fall on nursing to fill the gaps. Even then the supply of public health nurses and practitioners falls short of the need. Table 4 demonstrates that in the most rural States the ratio of nurses to population is almost half of that in most urban States.

Physicians' Offices

In a physician's office the role of the nurse varies and may range from that of receptionist to practice coordinator to nurse practitioner who advises patients and performs both nursing and medical services. The function of the nurse depends on the perceived needs of the individual physician. In some instances nurses are hired on the basis of suitability and attractiveness because some physicians do not realize that a well-prepared nurse could contribute to the practice. For nurses, work in private practice is attractive because of the regular working hours. However, because of their isolation, little opportunity exists for professional growth.

About 14 percent of nurse practitioners are employed by private physicians (*12*) and are usually salaried. In some instances when a nurse is a member of an incorporated practice, her income is a share of the practice. Practice arrangements and assignments of patients also vary among practices. At times she has her own group of patients that she manages except when she refers them to care.

Nurses in Health Maintenance Organizations (HMO's)

Within health management organizations the role of the nurse may be more clearly defined so that her nursing skills are better utilized. The HMO's often have both nurses and nurse practitioners on their staff.

Day Care Centers

Standard employment or utilization of nurses or other health practitioners in day care centers across the country does not exist. A survey of 52

licensed day care centers in Berkeley, California, found that over a third of the centers lacked a designated health coordinator, one-quarter lacked written health guidelines, and almost one-half lacked nutrition education services (*13*). In this survey it was also reported that "a large majority of young children in current day care centers come from underprivileged families and probably are in need of adequate health services." In addition, many federally funded day care centers are now enrolling handicapped children, and staff members are frequently ill prepared to deal with healthy children as well as handicapped children. Some supervision may be provided by public health nurses but this is usually incidental to their total care load.

A few nurses have taken on roles as consultant health providers to all or part of the day care centers in a community. These nurses are able to recognize developmental delays or incipient problems and work with parents to provide the proper care. They counsel day care staff on the management of behavior problems and make decisions regarding mothers calling for sick children to take them home. They can identify nutritional problems, provide preventive services, and may make home visits to counsel parents.

The role of nurses in day care centers has not yet been fully tested, but their potential for effective screening and health maintenance is great. Most nurses who have undertaken the day care consultant role are pediatric nurse practitioners with master's degrees. The need for well-prepared persons in this field is great. However, the obstacles to such a service are reimbursement and shortage of qualified nurses.

Chronically Ill and Handicapped Children

The needs of the chronically ill and handicapped child are unique, and they are very often not met in the current health care delivery system. The special needs of an individual patient may be addressed by medical specialists separately but often a lack of communication between these specialists regarding a single patient occurs. In many instances the nurse practitioner is the most qualified and logical person to coordinate services of all kinds for the handicapped child.

When working in specialized clinics that care for children with these conditions, nurse practitioners serve as coordinators of medical care as well as providers of primary care. They run parent groups, counsel adolescents, and teach nursing and medical students. They make home visits and serve as links between hospital and community and perform special services. In one spina bifida clinic the days in hospital for the total patient group were significantly reduced when a pediatric nurse practitioner–clinical specialist was in charge of the clinic.

Nurse specialists have done genetic counseling in birth defect clinics and provided counseling for parents of chronically ill and handicapped children. Pediatric nurse oncologists have also demonstrated their value in caring for children with cancer and bridging the gap between home and hospital.

Juvenile Justice System

Despite the fact that many children in the juvenile justice system may have suffered abuse or sexual exploitation, may be drug or alcohol abusers, have venereal diseases, lack immunizations, and have auditory and visual problems and learning disabilities, they are frequently almost totally deprived of health supervision except in cases of emergency. In one such center in North Carolina, a pediatric nurse practitioner–clinical specialist with a particular interest in adolescents provides health care, performs total health assessments including physicals, and develops management plans including followup and long-term tracking.

Community Nursing Clinical Specialist

The care provided at the community level previously described has usually focused on segments of the population that come to the center or clinic. Outreach into the community from such centers is currently very limited. Formerly the public health nurse performed both services. In 1974 Sheps wrote:

> ... it is difficult to find an official or unofficial health agency which is clearly taking on the task of monitoring, protecting and restoring the health of the population; it is not a simple matter to find one that is placing proper emphasis on prevention, and reflects in its program, the understanding that there are major forces in the way people live that affect their health. These are the problems which public health must address in the future by encompassing the whole area of environment, patterns of living, and opportunities for the full development of human beings both physically and mentally.

To achieve such objectives public health services must be integrated with personal health services. Practitioners must be trained to think on two levels and address both individual and aggregate needs.

> The skills necessary to deal with aggregates, particularly multiple aggregates, are different from those needed for clinical practice. Although some persons may be prepared to function effectively at both levels, it is questionable how realistic such an expectation could be. In the past, failure to recognize this distinction has led to neglect or merely superficial development of skills for dealing with decision-making at the aggregate level. Learning these skills is as demanding and time-consuming as developing advanced clinical skills. Therefore, within service settings, it seems reasonable to have both types of skills represented on the staff (*14*).

This situation requires preparation at the master's and doctoral levels of two complimentary groups of nurses:

- Direct care practitioners, who are specialized in the care of families and children, with some basic training in aggregate level skills and planning
- Public health nurse specialists with training in aggregate analysis and policy development with some basic clinical skills

Nursing Research

A significant amount of research in nursing practice is a recent development, which has been fostered by the grants program in nursing research of the U.S. Public Health Service Division of Nursing. This organization was established in 1956 and was spurred by commitment and recognition on the part of the nursing profession that only through the development of a scientific base for practice can the professional image of nursing be enhanced. Nursing care cannot be improved until scientific accountability becomes as much a part of nursing's tradition as humanitarianism is.

> As nursing moves ever more rapidly into its rightful place in health care delivery, as nurses take an increasing responsibility and authority for patient care... the demand for proof of our contributions will become more and more severe (*15*).

Nurses have developed and implemented innovative approaches to patient care and support, and not surprisingly have researched the effectiveness of these new procedures or programs. In the maternal and child health field they include, among others, the effectiveness of prenatal and "parenting" education, family centered nursing, breastfeeding, newborn intensive care procedures, preparation of hospitalized children to cope with frightening or painful procedures, and nutrition of hospitalized children.

Priorities for nursing research can be classified into five major categories: (1) theory development to explain differences in the processes and outcomes of care; (2) studies of the impact of the provider process on health status; (3) studies of organizational models of health care delivery and their relationship to the process of care; (4) questions concerning the cost benefit, productivity, and reimbursement of systems of care; and (5) the relationship of curriculum in nursing education to the needs of the delivery systems for maternal and child health.

NURSES AND THE PERCEIVED NEEDS WITHIN THE HEALTH DELIVERY SYSTEM

The term "primary care" first appeared in the literature in the late 1960's to describe a void in personal health services caused by increasing specialization and the disappearance of the family doctor. The term has been defined by the Department of Primary Care at the University of North Carolina School of Nursing as follows:

> Primary Care is a range of services delivered for the most part in ambulatory and home settings to meet the majority of needs for personal health care of individuals and groups. It focuses upon the assessment of health status, the prevention of diseases and disabilities, and maintenance of health. Clients are assisted in the management of significant life events, minor illnesses, chronic diseases, and nonspecific symptomatic complaints, with referral for specialty care as needed.

Contemporary nurses, especially those with bachelor's degrees and training as nurse practitioners, are ideally suited to provide primary care as well as community and outreach services. Nevertheless, barriers to broadening their participation in both primary care and public health services exist.

These barriers are both overt and covert, are sometimes related to nurses and their roles vis-a-vis physicians, but most of these barriers are related to power, control, and reimbursement. Although some of these perceptions are changing, the barriers remain, and those that pervade the field of nursing in general also pervade the maternal and child health field.

Issue—Career Entry Requirements and Credentials

In 1978, the American Nurses' Association resolved that as of 1985, the bachelor's degree will be a requirement for entry into professional practice. Associate degree and diploma graduates would be termed "technical nurses." This dual credentialing is in accord with historical attempts to professionalize nursing, but because it presumes two levels of licensure and employment, it will be difficult to implement.

Associate degree and diploma nurses have opposed this dual system for fear that they will be disenfranchised. At the same time many of them have applied for or entered bachelor's degree programs. For the older diploma nurse with an established family, the system has created problems related to career development and the difficulties of returning to school to acquire the requisite degrees. A number of States have sponsored outreach programs to enable these women to upgrade their professional status.

Two different categories of practice must evolve, and until they are made clear through public statements and other means, confusion will continue regarding the competence of nurses. With the clarification of the different levels of nursing to the public and within the medical professsion, some method must be devised to ensure the competence of professional nurses as they increase the performance of new methods of health promotion as well as the duties that were once the exclusive purview of physicians.

> The existence of multiple kinds of basic nursing education programs leading to licensure has created tremendous confusion regarding minimal preparation necessary to assure the safe and effective practice of nursing (*16*).

Issue—The Funding of Nursing Education

The recommendation to make the bachelor's degree a requirement for entry into practice will require the development of programs to upgrade associate degree and diploma nurses. Although the number of schools offering RN/BSN (registered nurse/bachelor's of nursing science) programs is increasing, the demand for admission already exceeds the available openings, and as noted previously the lack of the higher degrees presents a formidable barrier to career mobility. In addition, if program

funding is provided for nondegree certificate programs for nurse midwives and nurse practitioners, every effort should be made to arrange academic credit for the labor.

Although it might be argued that enough registered nurses exist, the need for more nurses with master's and doctoral degrees is critical in some parts of the country. The number of nurses with postgraduate degrees is currently insufficient to provide the leadership and research needs within the profession.

Issue—Access to Clinical Experience

Nursing administrators, educators, and students do not have sufficient access to clinical experience, especially in obstetrics and pediatrics. The competition from medical students and physicians for space and accessibility to patients is keen. Medical faculties who control medical center facilities logically give preference to medical students and physicians. The result is that nursing students often find themselves traveling as far as 100 miles a day for clinical experience. When nursing programs can pay for clinical experience, they can often find it. However, the system is at present inequitable, and steps should be taken to provide nurses and nursing students with greater access to patients and practice.

Issue—Credentialing and Licensing

Because of the development of new categories of health care professionals and their accompanying role realignment, established systems of credentialing and licensing have become outmoded and inadequate to meet current needs.

The credential issues of particular concern to nursing at the present time include the development of new State practice acts and certification for specialty practice. Because of the overlap between nursing and medicine, both the licensing and certification procedures for nurses are of concern to physicians.

To make licensing procedures responsive to innovations in health promotion and maintenance, it has been recommended that:

> Licensing board membership should be diversified. Public members need to be appointed in sufficient numbers to have real impact on board decisions. Members of health professions *other than* those *licensed* by the board should be appointed to all health licensing boards. (This latter feature often is imposed on less influential professions, e.g., placing physicians on nursing boards, but should also work the other way, placing nurses, podiatrists and others on physician licensing boards.) The result of diversification should be a balance of power preventing both undue restrictions and expansions by the profession.
>
> For mid-level health professions with rapidly changing roles in the health system, the law should incorporate institutional definitions of scope of practice for expanded role duties. One should distinguish

carefully the use of a general delegatory statute, where the scope is up to the supervisor, from an institutional statute (*17*).

This latter term, "institutional statute," refers to the employing institution. It would be better changed to an agency or board such as a State practice committee. Such a committee should have equal representation from medicine, nursing and health administrators. It should be autonomous and have the power to make decisions without ramification by interested professional associations. The result would be legal recognition of innovation without the necessity of repeated and cumbersome legislative revision.

Traditional licensing procedures have focused on "inputs" of both institutions and education of persons under consideration for licensing. Such inputs included experience, training, and performance evaluations. However, with the rapid changes in the health manpower field, it might be more realistic to measure output or outcome.

> Existing nongovernmental approaches to monitoring the quality of health practitioners should be integrated into the healing arts licensing activity. For example... performance evaluation by hospital review committees, third party review mechanisms and publicly accountable review committees.... As health licensure becomes more flexible and innovative, 'output' oriented quality control becomes imperative to supplement the 'input' orientation of traditional licensure (*17*).

Issue—Who Will Control Nursing Practice?

This question, although inextricably enmeshed in the issues of credentialing and financial reimbursement (see below), is of such importance as to warrant examination as a separate issue. The issue includes consideration of the territoriality and the scope of nursing practice, the independent practice of nursing and, most importantly, the consumer's right to access of information and choice of care providers.

Significant areas overlap between the practices of medicine and nursing. With the expanded technological developments in medicine, many of the procedures formerly defined as the sole prerogative of physicians have been delegated to nursing. These procedures include the use of the thermometer, the taking of blood pressure, and more recently the administration of injections. In the 1950's much discussion focused on whether nurses should begin administering intravenous fluids.

Conversely many functions that were within the purview of nursing have been assumed by medicine. The most notable, of course, is midwifery. In the early part of this century, it was recognized by physicians that they probably caused more deaths in childbirth than midwives did. Ironically, this realization caused them to upgrade their obstetrical practice and virtually drive out midwifery as a separate profession. In 1912, J. Whitridge Williams, professor of obstetrics at Johns Hopkins Medical School, wrote:

> If it appears necessary to reform anything, here is the opportunity. Why bother with the relatively innocuous midwife when the ignorant

doctor causes quite as many absolutely unnecessary deaths? From the nature of things it is impossible to do away with the physician, but he may be educated in time; while the midwife can eventually be abolished, if necessary (*18*).

Similarly, the nursing tradition of providing infant care through public health nursing and the reduction of infant mortality in the early years demonstrated to physicians that they were backward in their knowledge and practice of infant care. When pediatric medicine became a viable specialty, numbers of public health nurses were reduced and physicians became the prime health providers for children. In the first issue of the *Journal of Pediatrics*, John Lovett Morse urged physicians to take part in the child health movement. He wrote "it is necessary for our own preservation to do so. If we do not, the public authorities will take over" (*19, 20*).

Despite current concerns about licensing procedures and rapidly changing roles of health providers, a current movement in pediatrics to increase the scope of training for physicians in child development and behavior exists, which has been a major area of the master's degree programs in pediatric nursing for over 10 years. Although improvement in medical training in this field can scarcely be faulted, it does raise questions about what market it will serve and whether it is cost-effective.

Discussion is increasing within nursing concerning the independent practice of nursing, and a few nurses have opened their own offices. Largely they confine their services to nursing and are careful to avoid infringement into medical treatment. The independent nurse mainly assists "people in their individual self care practices in regard to their status of health" (*21*). The development of the independent practitioner has been aided by the increased ability of nurses to perform physical assessments as a result of the rural practitioner movement. In some instances, nurses make referrals to physicians or they leave the choice of a physician up to the patient. With the expansion of independent nursing, referral networks will probably expand also.

Independent nursing practice, as differentiated from nurse practitioner practice in satellite clinics with physician backup services and medical protocols, has met with opposition among some physicians. Donald D. Price, M.D., stated in an address to the Organization of State Medical Association Presidents that they must "try to avoid the independent practice of nurse practitioners at all costs. Nurse practitioners are not educationally or psychologically prepared to handle all situations in medical care." (He failed, of course, to note that neither are physicians.) Such statements reveal a lack of understanding of the differences between medical and nursing practices.

Nevertheless, in some instances, consumers are choosing nurses as their primary health care providers. This occurrence is especially true of pregnant women who are increasingly seeking nurse midwives. In addition, evidence suggests that a growing number of people are seeking advice on how to manage everyday medical problems in a health-promoting way.

Most of the services provided by independent nurses are not reimbursable through third party payment systems. An irrefutable indicator of the

growing need of patients for independent nursing services is that patients are willing to pay for them out of pocket.

Issue—Consumer's Right to Choose Type of Health Care Provider and Individual Practitioner

The consumer movement in health care together with an increased public awareness and sensitivity to health issues as well as dissatisfaction with medical treatment and resources has led many to seek unconventional treatment such as the recent case involving a child with leukemia.

Much of this dissatisfaction is caused by the depersonalized care in hospitals, clinics, and sometimes physicians' offices. The depersonalization of hospital health care, as a result of increased specialization of physicians, and the complexity of hospital procedures and intense activity within hospitals have caused people to feel lost in the system. Problems with unconventional treatment, on the other hand, include risk of misdiagnosis, quackery, and victimization of the patient. Although the patient's right to choose is undeniable, he should also have a right to know and choose from alternatives to physician care among conventional, licensed health care providers.

The public image of the nurse is misleading and the public does not have a clear understanding of the roles of nurses, nurse practitioners, and midwives either in or out of hospitals.

Young graduate nurses feel that, despite their hard work and their sometimes subtle but valuable contributions to patient and staff, they are neither noted nor rewarded. Staff nurse loyalty is split three ways—to hospital administration, to physician, and to patient. The patient often comes last because physician and hospital administration have greater power to reward and discipline.

Many nurses are leaving hospitals because they are prevented from giving personalized professional care by a system that frequently deprives them of the autonomy to set their own professional priorities. In one instance, a successful program instituted by a nurse clinical specialist serving as a psychiatric liaison nurse for pediatric units was attacked by the medical staff as having the wrong priorities.

> Over a period of months nurses (working in the pediatric units) emerged as confident, knowledgeable and vocal participants. They lost their usual reticences in offering ideas and were proud to claim results of their work. This view was shared by the parents who gave the nurses enthusiastic praise when discussing their children with medical staff. Tension grew among a small group of resident staff who refused to acknowledge the nurses' expanded role in the psychological aspects of care. They accused the nurses of "taking over," of resisting physician leadership... (and saw) the increasing appreciation of psychosocial factors as a devaluation of their work in physical treatment (*22*).

When the clinical specialist nurse who developed the program was on vacation a chief of service demanded that she be discharged. Only her threat to sue the hospital and the director of nursing saved her job and the

program. Other similar examples demonstrate the best of hospital nursing and the risk of success.

On the positive side, systems of primary nursing are being introduced in some hospitals which will provide continuity of care by one nurse for each patient during the hospital stay. A sufficient number of nurses with bachelor's degrees to fill such positions will go far to alleviate the depersonalization of care in hospitals.

Currently, however, few people know enough about primary nursing to demand it, and many hospital administrators are primarily interested in cutting costs. Furthermore, implementation of a system of primary nursing requires nursing supervisors and administrators who are educated in both nursing and personnel administration.

The role of the nurse practitioner in ambulatory care is even less understood by consumers who often are not aware of the potential of nurse practitioners in collaborative practice with physicians and, therefore, do not ask for practitioner services. In some instances, nurse practitioners have become the preferred care providers, and in at least two instances, were fired because they threatened the physicians' self-esteem.

Considerable evidence suggests that partnerships between physicians and nurse practitioners provide better care for more children than either discipline can provide by working alone. Federal support for such practices would undoubtedly increase the effectiveness of the joint nurse practitioner–physician approach.

Issue—Nurses and Preventive Health Care

Growing interest in preventive health care for the reduction both of illness and costs of illness has raised many issues which remain unresolved. These issues include: Who are the most suitable and qualified persons to provide preventive care? What are the most suitable institutional means through which this care can be provided? And how will health professionals be reimbursed for such care?

While recognizing the importance of prevention, physicians have focused their activities on curative care, with the possible exception of perinatal and well-child care. Curative methods tend to be quick and efficacious; however, preventive care tends to be time consuming and the results are not immediately demonstrable. Many of the current problems related to child health, such as child abuse and adolescent contraception, require time and counseling that physicians are neither trained nor inclined to give. "Interest in income-providing or efficiency enhancing health services is in profound conflict with values of prevention, even more so with those of health promotion" (*23*).

Nurses are ideally suited to provide preventive health care. Many aspects of this care are a major part of the history of nursing, beginning with midwifery, well-baby clinics, and the education of mothers and others responsible for child health. Today, the counseling and educational services required for preventive care require training in psychology and other social sciences which are already a part of nursing curricula and experience.

Issue—The Future of the Nurse Practitioner

About 12,000 nurse practitioners have been trained in the 15 years since the first nurse practitioner training program was started. This represents a considerable resource for maternal and child care. The nurse practitioner can manage 80–90 percent of all health care visits of "well" children and also contribute substantially to the care of chronically ill children. Nurse practitioners can provide care which was previously unavailable and are therefore highly regarded by their patients and/or parents.

A United States Congressional Budget Office study comparing new health professionals with physicians found that nurse practitioners spent 65 percent more time per patient visit than physicians and that hourly costs were about one-third to one-half of those of physicians. Another study reported that nurse practitioners in private care practice increased the number of patients seen and that the quality of care based on illness outcome and patient satisfaction equalled that of physicians.

Babies cared for by nurse midwives weigh more and adjust to extrauterine life faster, premature babies are fewer, and less fetal or neonatal deaths occur even in populations at considerable risk (*24*). Also the incidence of prematurity decreases, more prenatal care is administered, and followup care is better when provided by midwives.

The degree to which nurse practitioners and nurse midwives can make a contribution to the health care of mothers and children will depend on the ability of nurse practitioners to survive a rising tide of physicians, resistance and reimbursement mechanisms and the realization on the part of policymakers that a large increase in the number of physicians is neither economic, necessary, nor desirable to meet the primary health care needs of the country.

A number of State medical societies have openly opposed revisions of nurse practice acts to update nursing services, and physicians are actively opposing nurse practitioner endeavors to reorder care (*25*).

Issue—Third Party Payment and Reimbursement

Central to the question of reimbursement for nursing services are three goals of public policy regarding health care. These goals are to ensure accessibility, quality, and reasonable cost of care. The current system of reimbursement effectively interferes with the achievement of these objectives.

Financial accessibility is limited by regulations that limit reimbursement to physician prescribed treatment, do not provide payment for preventive care, and support the physician as the sole entry point into the medical system. Except for out-of-pocket payment by patients and a few clinics covered under the rural health bill, no access to fee-for-service payment for nonphysician health providers exists.

These regulations not only interfere with the development of independent nursing practices, they also inhibit employment of nurse practitioners by private physicians. If the physician must personally see and approve

therapy for each patient seen by a nurse practitioner (current Medicare regulations) no economic advantage exists in employing one.

Requirements that make the availability of professional nursing services conditional on the recommendation of a physician restrict freedom of choice for consumers and frequently prevent them from receiving needed care. This stipulation is a particular problem for home-bound patients and persons in long-term care facilities.

By denying third party payment for preventive and health promotive services the quality of care is severely restricted. Neither collaborative physician-nurse practices offering comprehensive health care, nor innovative preventive services for schools, day care centers, and the elderly are likely to develop.

The problems of limitation of third party payments for nursing service extend into the hospitals. Currently, nursing service budgets are inflated in hospitals because they are often combined with costs for linen, auto maintenance, and public relations as well as costs for nonprofessional nursing services. An established and monitored uniform budget procedure should identify true costs of services by professional nurses within institutions.

The objections to third party payment for nonphysician and preventive services stem from the national concern with cost of care, lack of belief in the efficacy of preventive and promotive services, and the lobbying activities of the American Medical Association.

In the long run, some form of national health insurance must be developed to liberate all health providers from the trap of the fee-for-service system which requires physicians to be businessmen and deprives the public of needed health services.

By now it has become evident that the contribution of nurses, acting independently or in collaboration with physicians, is both economically and clinically effective, and that the nurse in some instances has become the preferred primary care provider.

The current system of reimbursement prevents the development of a self-sufficient and autonomous group of effective nonphysician health professionals, hinders the patient's right to choose his practitioner unless he pays for the service, and supports a health delivery system which is highly specialized (curative rather than preventive) and extremely expensive.

Hospital nurses should be reimbursed directly for the special services that they provide such as counseling.

Reimbursement should be based on the salaries of the lowest cost credentialed provider. Reimbursement should be made according to the service rendered and should be paid directly to the qualified and credentialed person providing the service.

CONCLUSION

An available pool of health professionals falls into the category of nurse despite a wide range of differences in training and competency. Although

the nurses of today are successors to the nurses of the turn of the century, many of them have gone far beyond the traditional roles of the provider of bedside care. At the same time, the bedside care required of those who continue to provide such care has become more complex and specialized.

Despite the preparation of many nurses in skills and techniques that closely resemble those of physicians or that overlap physicians' and, despite their being clinically and economically more effective than physicians under certain circumstances, nurses are still regarded as supplementary to or extensions of the physician-centered health care system as it currently exists in the United States.

The major issues that must be resolved to increase nursing participation and improve the effectiveness of nurses in the provision of services for mothers and children include:

- Recognition among the public, hospital administrators, and other health professionals of the training and competence of nurses in many and diverse specialties and their ability to provide quality care both in and out of hospitals
- Development of health delivery systems that focus on the needs of patients rather than the disciplines of providers
- The need for nursing to more clearly differentiate levels of practice and ways for achieving them
- Reexamination and restructuring of outmoded credentialing and licensing systems to give appropriately prepared nurses more autonomy and allow more independent practice
- Legislative and fiscal support for alternatives to physician care including nurses, nurse practitioners, nurse midwives, social workers, nutritionists, physical therapists, psychologists, and trained home visitors
- Support for the visiting public health nurse concept, especially among those segments of the population that are most in need and who have no easy access to health facilities
- Reimbursement procedures that will allow nurses and other nonphysician health professionals to be reimbursed independently through public and private third-party payment systems
- Increased Federal support for doctoral preparation for nurses and for nursing research
- Inclusion of nurses in health policymaking boards and committees

REFERENCES

(1) Kalisch, P. A. and B. Kalisch. *The Advance of American Nursing* p. 337. Boston: Little Brown and Co., 1978.

(2) Terris, M. "Evolution of Public Health and Preventive Medicine in the United States." *American Journal of Public Health* Vol. 65, 1975.

(3) Kohnke, M. F. "Do Nursing Educators Practice What Is Preached?" *American Journal of Nursing* 73: 1571–1573, September 1973.

(4) Bensman, P. A. November, 1975. "Have We Lost Sight of the AD Philosophy?" *Nursing Outlook* 23: 688–92.

(5) American Nurses' Association. "First Position on Education for Nursing." *American Journal of Nursing* 66: 517, 1966.

(6) Styles, M. and H. Wilson. "The Third Resolution." *Nursing Outlook* 79: 44, 1979.

(7) Moses, E. and A. Roth. "Nurse Power." *American Journal of Nursing* 79: 1745–1756, October 1979.
(8) Committee on Perinatal Health. *Toward Improving the Outcome of Pregnancy: Recommendations for the Regional Development of Perinatal Health Services.* National Foundation—March of Dimes, 1976.
(9) Bishop, B. Editorial in *Maternal Child Nursing.* Vol. 4, May–June, 1979.
(10) Igoe, J. B. "The School Nurse Practitioner." *Nursing Outlook* 28: 381–384, June 1975.
(11) Roemer, M. I. *Rural Health Care* p. 82. Saint Louis: C. V. Mosby, Co., 1976.
(12) Saltz, H., M. Zielsery, J. Gentry, and L. Kenyon. *Longitudinal Study of Nurse Practitioners.* Phase I—U.S. Department of Health, Education, and Welfare, Publication Number 76-43, 1976. Phase II—U.S. Department of Health, Education, and Welfare, Publication Number 78-92, 1978.
(13) Chang, A., S. Zuckerman, and H. M. Wallace. "Health Services Needs of Children in Day Care Centers." *American Journal of Public Health* 68: 373–377, April 1978.
(14) Williams, C. "Community Health Nursing—What Is It?" *Nursing Outlook* 25: 250–254, April 1977.
(15) Gortner, S. R. "Scientific Accountability in Nursing." *Nursing Outlook* 22: 764–768, 1979.
(16) Nichols, B. Keynote Address to the 1979 North Carolina Nurses' Association Convention. *Tar Heel Nurse* 41: 6, November–December 1976.
(17) Fox, J. G. and S. R. Zatgin. "Innovations in Family and Community Health Practice and the Law," *Family and Community Health* Vol. I, April 1978.
(18) Williams, J. W. "Medical Education and the Midwife Problem in the United States." *Journal of the American Medical Association* 58: 1, 1912.
(19) Morse, J. L. "Original Communications. The Why and What For." *Journal of Pediatrics* 1: 25, July 1932.
(20) DeMaio, D. "Health Services for Children: A Descriptive Analysis of an Urban Problem." Presented at the scientific sessions of the American Academy of Nursing, Los Angeles, September 17, 1979.
(21) Kinlein, L. "Point of View on the Front: Nursing, Family and Community Health." *Family and Community Health* 1(1): 62, April 1978.
(22) Petrillo, M. and S. Sanjor. *Emotional Care of the Hospitalized Child* p. 17. Philadelphia: J. B. Lippincott, 1972 (and Personal Communication).
(23) Levin, L. "Patient Education and Self Care. How Do They Differ?" *Nursing Outlook* 78: 170, March 1978.
(24) Diers, D. and S. Molde. "Some Conceptual and Methodological Issues in Nurse Practitioner Research." *Research in Nursing and Health* 2: 73–84, 1979.
(25) Maukuch, I. "The Nurse Practitioner Movement—Where Does It Go from Here?" *American Journal of Public Health* 68(11): 1074, November 1978.

BIBLIOGRAPHY

Abbey, B., M. L. Clark, M. M. Conklin, D. Knagendorg, N. McCoy, and M. Scoblic. "Nursing Responsibility in Referring the Convalescent Newborn." *Maternal Child Nursing* 77: 295–297, September–October 1977.

Abdellah, F. G., and E. Levine. *Better Patient Care through Nursing Research.* New York: The MacMillan Co., 1965.

Adomson, J. F. "School Nursing Services—Some Current Justifications and Cost-Benefit Implications." *The Journal of School Health* 78: 603, December, 1978.

Alpert, J. and E. Charney. "The Education of Physicians for Primary Care." U.S. Department of Health, Education, and Welfare. Publication Number (NRA) 74-3113. Washington, D.C.: U.S. Government Printing Office, 1973.

Altshuler, A. and A. H. Seidl. "Teen Meetings: A Way to Help Adolescents Cope with Hospitalizations." *Maternal Child Nursing* 348–353, November–December, 1977.

American Nurses' Association. Reimbursement for nursing service. A position statement of the Commission on Economic and General Welfare. American Nurses' Association Publication Code EC-139. Kansas City, 1977.

ANA Investigative Commission on Unmet Health Needs of Children. "Report on the Hearing on Unmet Health Needs of Children." 1978.

Arndine, C., H. Uman, and V. Shapiro. "The Infant with a Long Term Tracheostomy and the Parents: A Collaborative Treatment." *Comprehensive Pediatric Nursing* 3: 29–41, July 1978.

Bowen, B. H. *Evaluation Committee Report on Mid-South Home Health Services.* Memphis, 1975.

Brown, E. L. *Nursing for the Future.* New York: Russell Sage, 1948.
Congressional Budget Office, Congress of the United States. "Physician Extenders: Their Current and Future Role in Medical Care Delivery." Washington, D.C.: U.S. Government Printing Office, April 1979.
Craft, M. "Help for the Family's Neglected 'Other' Child." *Maternal Child Nursing* 247–300, September–October 1979.
Curran, C. L. and M. K. Kachoyeanos. "The Effects on Neonates of Two Methods of Chest Physical Therapy." *Maternal Child Nursing* 309–313, September–October 1979.
Diers, D. *Research in Nursing Practice.* Philadelphia: J. B. Lippincott. 79: 75.
Dowd, E., J. Novak, and E. Ray. "Releasing the Hospitalized Child from Restraints." *Maternal Child Nursing* 370–373, November–December 1977.
Dublin, L. *The First One Thousand Midwifery Cases of the Frontier Nursing Service.* New York: Metropolitan Life Insurance Co., 1932.
Eager, M. "Long Distance Nurturing of the Family Board." *Maternal Child Nursing* 77: 293–294, September–October 1977.
Ernst, E. K. M. "The Evolving Practice of Midwifery." *Health Law Project Library Bulletin* 4: 289–294, September 1979.
Fagin, C. M. "Primary Care as an Academic Discipline." *Nursing Outlook* 78: 750–753, 1978.
Farrell, Sister Ellen and B. S. Kierman. "A Positive Approach to Nutrition for Hospitalized Children." *Maternal Child Nursing* 77: 113–117, March–April 1977.
Flanagan, L. *One Strong Voice—The Story of the American Nurses' Association,* pp. 16–17. American Nurses' Association, Kansas City, 1976.
Gomer, M. "The Ideology of Professionalism." *Nursing Outlook* 79: 108–111, February 1979.
Grassley, J. and K. Davis. "Common Concerns of Mothers Who Breastfeed." *Maternal Child Nursing* 78: 347–348, November–December 1978.
Gross, R. J. "Primary Health Care: A Review of the Literature Through 1972." *Medical Care* 12: 638–647, 1974.
Gruis, M. "Beyond Maternity: Post Partum Concerns of Mothers." *Maternal Child Nursing* 77: 182–186, May–June 1977.
Haight, J. "Steadying Patients as They Go—By Phone." *Maternal Child Nursing* 77: 311–312, September–October 1977.
Hilman, N. A. and P. A. McAtee. "The School Nurse Practitioner and Her Practice: A Study of Traditional and Expanded Health Care Responsibilities for Nurses in Elementary Schools." *Journal of School Health* 43: 431–434, September 1979.
Ingelfinger, F. J. "The Physician's Contribution to the Health System." *New England Journal of Medicine* 295(76): 565–566, September 2, 1976.
Johnson, J. E. "Effects of Accurate Perception on the Sensory and Distress Components of Pain." *Journal of Personal Social Psychology* 27: 261–275, August 1973.
Katz, H. P., J. Poulin, and A. Vruzlin. "Quality Assessment of a Telephone Care System Utilizing Non-Physician Personnel." *American Journal of Public Health* 68: 31–37, January 1978.
Kelly, L. Y. End paper. *Nursing Outlook,* December 1979.
Kramer, M. *Reality Shock: Why Nurses Leave Nursing.* Saint Louis: C. V. Mosby, 1974.
LeRoux, R. S. "Sex Role Stereotyping and Leadership." *Nursing Administration Quarterly* 1(76): 28, Fall 1976.
Lysaught, J. *An Abstract for Action.* The National Commission for the Study of Nursing and Nursing Education. New York: McGraw Hill, 1970.
Magraw, R. M. "Does Comprehensive Care Make a Difference?" *American Journal of Diseases of Children* 122: 475–555, December 1971.
Maycroff, M. as quoted by B. Bishop in an editorial. *Maternal Child Nursing* 77: 5, January–February 1977.
McCullen, Sister Marie James and R. Lamb. "Prenatal Classes for Expectant Grandparents." *Maternal Child Nursing* 78: 336–337, November–December 1978.
McRae, M. "'Condemned Loneliness' A Necessary Maternity Care Decree?" *Maternal Child Nursing* November–December 1977.
National Foundation—March of Dimes, 1976, The Committee on Prenatal Health. "Toward Improving the Outcome of Pregnancy." Recommendations for the Regional Development of Maternal and Perinatal Health Services, White Plains, New York, 1976.
National League of Nursing. "Educational Preparation for Nursing—1977." *Nursing Outlook* 78: 568–573, September 1978.
Nuckolls, K. B. "Clinical Implications of a Study of Life Crisis, Psychosocial Assets and the Prognosis of Pregnancy," 1973.

Nuckolls, K. B., J. Cassel, and B. Kaplan. "Psychosocial Assets, Life Crisis and the Prognosis of Pregnancy." *American Journal of Epidemiology* 95(5): 431–440, 1971.

Nurse Incorporated. *Facts About Nursing with Nurse, Inc.*, Fact Sheet. Lakewood, Colo.: Nurse, Inc., 1979.

Polit, D. and B. Hungler. *Nursing Research: Principles and Methods*, Chapter 1. Philadelphia: J. B. Lippincott Co., 1978.

Porter, L. "Health Care Workers' Role Conceptions and Orientation to Family-Centered Child Care." *Nursing Research* 28(6): 330–336, November–December 1979.

Price, D. A. *American Medical Association Newsletter.*

Reinhardt, U. *Physician Productivity and the Demand for Health Manpower* p. 24. Cambridge: Ballinger Publishing Co., 1976.

Rubin, R. "Attainment of Maternal Role," Part I. *Processes of Nursing Research* 16: 237–242. "Models and Referrants," Part II. *Nursing Research* 16: 342–346, 1967.

Seward, E. K. "Medicare, Medical Practice, and the Medical Profession." *Public Health Reports* 76: 318, July–August 1976.

Sheps, C. G. "Crisis in Schools of Public Health." *The Body Politic.* School of Public Health at the University of North Carolina, 2: 3, August 1974.

Silver, G. A. *Child Health: America's Future*, p. 243. Georgetown, Md.: Aspen Systems Corp., 1978.

Sonstegard, L. J. and E. Egar. "Family Centered Nursing Makes a Difference." *Maternal Child Nursing* 76: 249–254, July–August 1976.

Sox, H. C. "Quality of Patient Care by Nurse Practitioners and Physicians' Assistants: A Ten-Year Perspective." *Annals of Internal Medicine* 91: 459–468, 1979.

Spitzer, W. O. *et al.* "The Burlington Randomized Trials of the Nurse Practitioner." *New England Journal of Medicine* 290: 251–256, 1974.

Styles, M. *et al.* "Study of Credentialing in Nursing: A New Approach." American Nurses' Association, Kansas City, 1979.

Sumner, G. "Giving Expectant Parents the Help They Need: The ABC's of Prenatal Education." *Maternal Child Nursing* 76: 220–225, July–August 1976.

Sweet, P. T. "Prenatal Classes Especially for Children." *Maternal Child Nursing* 79: 82–83, March–April 1979.

Tealey, A. R. "Getting Children to Keep Still During Radiotherapy." *Maternal Child Nursing* 77: 179–181, May–June 1977.

Timm, M. "Prenatal Education Evaluation." *Nursing Research* 28(6): 338–341, November–December 1979.

Tuthill, R. W. *et al.* "Evaluating a School Health Program Focused on High Absence Pupils: A Research Design." *American Journal of Public Health* 62: 40–42, January 1972

Vana, C. "Womenleaders: Modern Day Heroines or Societal Deviants." *Image* 11(2): 37–41, June 1979.

Vaughn, J. C. and W. L. Johnson. "Educational Preparation for Nursing—1978." *Nursing Outlook* 79: 608, September 1979.

Winslow, C. E. A. and J. Goldmark. *Nursing and Nursing Education in the United States*, pp. 11, 24. New York: The MacMillan Co., 1923.

Wolfer, J. A. and M. A. Visintainer. "Pediatric Surgical Patients' and Parents' Stress Responses and Adjustment as a Function of Psychologic Preparation and Stress Point Nursing Care." *Nursing Research* 24: 244–255, July–August 1975.

SECTION VII

RESEARCH AND INFORMATION NEEDS

REFLECTIONS ON MATERNAL AND CHILD HEALTH PROGRAMS REVIEWING THE LITERATURE: 1975-80[1]

by

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INTRODUCTION

Over the past 5 years the striking characteristic of the public health aspects of maternal and child health has been the dearth of new and imaginative developments. With certain notable exceptions, the excellent bibliographic review published in 1974 (*1*) and the analytic review of Newberger, Newberger, and Richmond (*2*) are as timely as they were when published. The exceptions are in the field of midwifery and home births, where a tempest is brewing on philosophical and humanistic as well as on scientific and technological grounds, and in child abuse and neglect, for which there is a burgeoning literature from a wide range of disciplines that offers insights into what had been earlier perceived as a medical and public health phenomenon.

Even the legislative arena has shown little interest in the public health aspects of maternal and child health so that, while some efforts have focused on more extensive child health service legislation, with the single exception of Public Law 94–142, the Education for All Handicapped Children Act, little has been accomplished. The latest proposed legislation, the Child Health Assurance Program (CHAP), languishes in the Congress; one or two similar bills have not had hearings. Some State activities, however, deserve mention. Connecticut made a gingerly effort in 1980 toward improving school health services. Many other States are moving in this direction, including Pennsylvania, Utah, North Dakota,

[1]Based upon an annotated bibliography prepared by Dr. Silver and Raymond Borsoi; supported by a grant from the National Center for Health Services Research, 1 RO3 HS 04145-01.

The articles or books referred to in the text of this section are not the only ones applicable, nor are they necessarily the best to be found in the literature to illustrate the points. However, they do exemplify reporting in a more or less random selection.

[2]Professor of Public Health, Yale University School of Medicine and from the Center for Health Studies of the Institution for Social and Policy Studies.

and New York. In addition, the Southern Growth Policies Board has undertaken a study of the status of children in the South which has emphasized data collection, but with the ultimate goal of reforming social policies regarding children including health policies.

Other, more promising, initiatives include the Robert Wood Johnson Foundation which has funded statewide efforts to improve maternal and child health care in rural areas and school health service innovations across the country. Congress ordered the Department of Health, Education, and Welfare (DHEW), now the Department of Health and Human Services (DHHS), to establish a Task Force (The Select Panel for Promotion of Child Health—P.L. 95–626, Sec. 211 (2)(A)) to review and recommend improvements in child health services and programs.

From the standpoint of social philosophy, the most important publication in the past 5 years was the report of the Carnegie Council for Children (*3*). The report emphasizes social improvement as the key to improved health of children. It takes the position that tinkering with the symptoms of delinquency, drug abuse, and morbidity does not deal effectively with the problems unless more funds are made available for the family, better education for poor children, and a national policy of social support. Keniston does not ignore the need to improve existing health care programs for children, but believes these can never succeed entirely or make serious inroads into the problem unless the larger social issues of poverty and discrimination are eradicated.

Although the need for more and better social support for children is recognized, the improvement of health services may be important—if only because such improvements will strengthen the resolve of child health advocates and lead the way to other changes.

Maternal and child health services have improved, as evidenced by recent statistics (*4*). Large investments have been made by the public sector in health programs for mothers and children. Attitudes regarding social commitment to children have changed somewhat, particularly in an increased sense of responsibility for the poor and helpless. However, important gaps still exist in service availability and delivery for segments of the population, leading to disparities in levels of health status (*4*).

In addition, the risks have shifted over the last decade, as have the agents of risk now recognized as contributing to the ill-health of children and to infant mortality. These risks include the increasingly younger ages at which women bear first children—particularly teenage and unmarried women—which is associated with higher rates of infant morbidity and mortality as well as with social and psychological disadvantages. Drug use among younger children is increasing, as are sexual activity, associated venereal disease, and cigarette smoking.

The uneven distribution of health care resources and facilities has continued to result in discrepancies in health status among poor children, minorities, and the geographically isolated. Furthermore, the lack of universal eligibility criteria for medical care skews the distribution of such care in other ways as demonstrated by the inappropriate use of preventive services and lack of availability of such care for those who most need it.

Finally, increasing recognition of the dark side of parental responsibility—child neglect and abuse—has taken place in the past decade. Child

abuse and neglect had, of course, been noted in earlier years;[3] however, recently increased concern is evident in the accumulation of information and literature; in the establishment of a data collection and dissemination center; in the publication of a journal; and in a series of national and international conferences sponsored by organizations concerned with the issue.

Despite increased concern for the health and well-being of children, however, a summary of the findings and recommendations of Sheldon White, et al. is still applicable. It should be noted in any assessment of the state of maternal and child health and used as a *current* guide for change and improvement. "There is clear evidence that significant health risks to children and particularly to poor children persist despite the general improvements in American health over the last century" (*6*). The idea is repeated in the later comprehensive article by Newberger et al.: "Review of the nature, quality and distribution of child health services demonstrates a systemic inability to reach and treat children most in need of them" (*2*).

The White report associates certain social and environmental factors with poor and minority children. These include the greater disabling maternal factors that contribute to higher infant mortality and maternal morbidity, as well as mortality, housing, nutritional, and environmental risk factors that contribute to the greater susceptibility of poor children to infectious disease and other health problems. The White report strikes immediately at the central issue: "The Federal Government does not invest in children in proportion to their numbers. The basic reason for this difference is that national policy has accepted provision of a minimum level of health services as a right for the aged. Such a right does not exist for children" (*1*). Other factors noted in the report that reduce the resources available to the children in need include the entrepreneurial nature of medical practice, lack of research in the special social and environmental factors affecting childhood illness, and the lack of bold advocacy. Such advocacy would principally emphasize the economic and social advantages that would accrue if appropriate and high quality health care were made available to all children. Improving child health means improved adult health status.

In addition to pointing out the needs and gaps in delivery, the White report attempts to evaluate existing programs from the point of view of their effectiveness, however limited their objectives. Government programs come under heavy criticism for failing to undertake sufficient critical evaluation and, when evaluation is done, for being relatively ineffective. Lack of coordination is mentioned, as are spotty coverage and inappropriateness of goals. "One clear need is for models which combine medical, psychological, and educational diagnoses and treatments; the failure of Head Start and Follow Through to become truly integrated and comprehensive does not bode well for other attempts, such as the newer parent–child center projects" (*1*).

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[3]The term "child abuse" formally entered the literature in 1962 in Kempe's "The Battered Child Syndrome" (see reference no. 5). Bibliography

The Newberger and Richmond report emphasizes "the new morbidity" more than the White report does, and includes the "increasingly important symptoms of familial, social, and behavioral distress as child abuse, accidents, and childhood suicide." Furthermore, the Newbergers attempt to carve out an area of child health policy distinct from national health policy, in recognition of the effects on health or medical care programs when adult and child needs compete for resources. The White report also touches on the need for separate health policies for children in its final recommendations: "To what extent will reforms and revolution in the larger health care delivery system—national health insurance, consumer advocacy and control, new organizational forms such as prepaid group practice—have a greater long run (or even immediate) impact on the health status of children, individually or as a group, than programs specifically designed for (and directed at) children?" (*1*).

Newberger, Newberger, and Richmond (*2*) present a comprehensive review and include information on the status of child health in the United States today, the social and environmental context of child health, the current conceptual basis of child health care as well as the actual and the alternative proposals and, based on these, program recommendations for improvement.

To begin with, they agree that child health improved from 1964 to 1974, but that the improvement has not reached all children or brought benefits equally to all children. Furthermore, certain morbid conditions (accidents) have not improved at all, and some new grave concerns have emerged—behavioral and psychophysiologic illnesses. Most serious is the relative failure of services needed and continuation of noxious factors among the poor and minority group children, so as to leave them behind in the general advance. Poverty and minority status represent continuing powerful deterrents to equity in child health, as evidenced by lower immunization rates, more malnutrition, and higher infant mortality. Because malnutrition is associated with prematurity and low birth weight, which are associated with brain damage and mental retardation, and because lesser availability of health and medical care services also means lesser opportunity to repair the damage of these factors, the children of the poor and minority groups are in double jeopardy.

There is a sad recital of continuing preventable disease because of lack of immunizations among certain population groups: diphtheria among Chicanos and Indians; pertussis and polio among the poor. Despite mandatory immunizations prior to school entry, preschool children are proportionately less well protected and suffer the consequences. "Even though the prevalence of handicapping conditions and their antecedents in childhood illness is disproportionately greater among the poor, only 15.7 percent under 17 from families whose annual income is under $2000 visit a physician during a 1-year period, as compared to 53.9 percent and 57.6 percent, respectively, of children whose family income is $10,000 and above and $15,000 and above." More than economics is involved in failure of the poor and minority group children to receive needed care or preventive services. The organization of the health care service system—including access and arrangements, lack of educational outreach activities, and language barriers—predisposes to lesser utilization.

Basic policies with regard to child health, including lack of universal eligibility criteria, needs and means tests, and State discretionary authority, hamper equitable distribution of services. And American patterns of variety and heterogeneity of programs ("pluralism"), specialization, fragmentation of programs, the entrepreneurial nature of medical practice ("fee-for-service" and "solo"), individual character of the practitioners, and emphasis on freedom of choice militate against universal provision of services.

Newberger, Newberger and Richmond conclude, *"Where the means exist to ameliorate or eradicate health problems, such means do not equitably reach and serve the poor and nonwhite."*

They are stern about the possibilities of a two-class system of care, sometimes euphemistically described as "targeting": *"When services are provided for the poor, they frequently neglect minimal needs for privacy, dignity, and convenience."* Poverty, they point out, is not given adequate consideration as a causative factor of illness because it is rarely the immediate cause and because the conditions it may give rise to are less likely to affect the majority of children. These conditions are thus of lesser concern to the larger society and the health establishment. Nevertheless, diseases concentrated among the poor (such as lead poisoning) affect greater numbers of children than some illnesses that receive great attention (like polio) but attack higher income families as well as the poor.

One important contribution of the Newberger compilation is the strong emphasis on both the poverty and minority etiology of illness and the environmental sources of morbidity and mortality. From this topic, they proceed into discussions of illness phenomena that are socially and interpersonally derived. The recommendations therefore deal with the irrationality of the current structures for child health and more recently recognized relationships. They want a more orderly system of care, an emphasis on prevention, more attention to the special needs of the disadvantaged, more concern for equity in the system, a mechanism for outreach, elimination of environmental factors and "ameliorating risk, screening for risk, and the delivery of service as a matter of right."

For them, the basic elements of improvement of health services for children are *entitlement* and *access* (their emphasis), which call for a national advocacy program including the following: a social program to help families; direct intervention in communities; teaching parents about child development and child care; and providing advice and guidance in addition to effective programs of prevention and medical care.

The specifics of their recommendations are as meaningful and necessary today as when they were made:

- Adequate financing through a national health insurance program for all or for children alone
- Local planning
- Improved screening and surveillance
- A coordinated delivery system
- Focused manpower development and training

On reviewing these comprehensive and important documents, the sobering thought occurs that this additional review of the literature may be wholly unnecessary because what is needed is action.

EVIDENCE OF CONTINUING FAILURES IN CHILD HEALTH CARE PROGRAMS: NEEDS AND MEETING THE NEEDS

Two relatively comprehensive general studies have been published (*7, 8*) with regard to health care needs. Aday, Anderson, and Fleming consider the entire age range from the standpoint of *access*. The theoretical framework conceives of the delivery system and the characteristics of the population as one aspect of access ("probable or *potential* levels of access to medical care") and "utilization and satisfaction measures" or actual or *realized* access to services as another aspect of access.

Among the findings, the following are most noteworthy:

- Poor nonwhite children had the least access to regular sources of care. As many as 23 percent of poor nonwhite children had no access compared with 7 percent for white nonpoor children.
- Poor nonwhite children see a pediatrician as the regular source of care more frequently than the nonpoor white children (20 percent to 14 percent) but this is probably an artifact of clinic services. The study makes no distinction between seeing the doctor in his office or in a clinic.
- The designation "without regular source of care" is associated with not feeling the need for care, so that, of this group, 23 percent of the nonwhite children had *never* had a regular doctor.
- Low-income persons were either uninsured (55 percent) or on Medicaid (76 percent) and Southern nonwhites were less likely to be on Medicaid (which can be attributed to variations in State eligibility requirements).
- Farm dwellers report longer travel times to medical care, as expected, and more extended waits in physicians' offices. They are also less likely to have medical insurance.
- Persons using hospital outpatient departments have less convenient care (longer waiting periods, more restrictive time frame), particularly low-income persons.
- As far as actual utilization is concerned, rural farm dwellers and low-income persons saw physicians less than upper income urban persons (68 percent of rural persons compared with 78 percent of urban persons; 73 percent of low-income persons compared with 79 percent of high-income persons). Among nonwhite persons with incomes below the poverty level, as few as 64 percent saw a physician. Poor children between the ages of 1 and 5 specifically used services even less (78 percent to 79 percent). Because the data were collected according to age groups and not by income levels, discrepancies in immunizations among groups with different incomes could not be detected.
- Poor nonwhites consistently used less preventive care and had lower immunization levels, although the differences were not great (60 percent compared with 77 percent for the tuberculosis patch test; 89 percent compared with 95 percent for polio immunization; 76 percent compared with 86 percent for measles immunization).

- Low-income women are less likely to see a doctor within the first 3 months of pregnancy (65 percent compared with 80 percent).
- Thirty percent of nonwhites below the poverty level saw a dentist; 23 percent of Hispanics below the poverty level and 51 percent of central city dwellers compared with 61 percent of high-income persons.
- Finally, satisfaction with services follows similar patterns: better educated persons with high incomes are more satisfied (or less *dis*-satisfied) with the convenience and availability of service than poorer, less well educated persons (46 percent to 56 percent). Nonwhites with incomes below poverty level show 86 percent greater dissatisfaction with availability of services, 79 percent more dissatisfaction with convenience but only 59 percent greater dissatisfaction with financing—perhaps a result of Medicaid.

In short, "minority groups—urban and rural blacks and persons of Spanish heritage in the Southwest—appear to be more dissatisfied with all aspects of their care than whites. ... The actual utilization of services appears to be highly correlated with the extent to which organizational and financial barriers to care seeking may also persist" (*8*).

The authors conclude that ad hoc arrangements may be all that is needed to improve access to health care. They recommend wider use of the National Health Service Corps, increasing services for specific groups such as migrants or mothers and children. Better organization of services and more health education are also recommended, as is improvement of existing enabling legislation which they believe has been effective in the past as in the case of Medicare and Medicaid.

The Harvard studies are entirely devoted to critical analysis of the health care system's response to the needs of children. Although infectious disease was found to have almost disappeared as an important cause of childhood mortality, accidents have not declined as markedly. Infectious diseases still take a greater toll among nonwhites than among whites (44/100,000 compared with 14) and accidents take a far greater toll among nonwhites than whites (53.6/100,000 compared with 26.9). Chronic illness is reported in greater volume among the well-to-do than among the poor (which may be a function of definition and access). Because clinical examination for allergies was not done, poor children may have less asthma or hay fever, but this speculation is unlikely. Observable conditions such as orthopedic cases were more common in lower income groups (13.8 to 9.7). Whether medical services were obtained was certainly a function of family income.

The series of articles in the Harvard volumes examines techniques for determining need and suggestions for improving the organization and financing of medical care for children. The following recommendations are included in the final volume:

- "Children present different health problems and thus have special medical needs quite different from those of adults. Current government policies are not well-directed toward fulfilling those special needs."
- "Children's illness patterns indicate a need for a primary care

focus in the medical care system. Children need continuing and comprehensive medical attention aimed at prevention."

- "Any proposed change in the medical care system must be carefully considered in light of the special needs of these groups of children (minority children and children from lower income families) with more illness and lower service utilization rates."
- Some doubt exists as to the effectiveness of primary care for children and the present system's techniques for delivering that care. Observation of children must take place where they live, learn, and play, not just in the doctor's office. The care must be given in conjunction with outreach services and followup efforts to ensure compliance.
- Financing ought to be other than fee-for-service although the report does not specifically recommend a particular system of payment.
- Nonphysician child health workers are necessary and desirable in staffing any organized system of child care. Financial, professional, and organizational barriers to their use must be overcome.
- To improve the capacity of the child health workers to recognize, diagnose, and treat childhood illnesses, research must be undertaken. This research should particularly emphasize alternate systems of service, delivery, and financing for children's primary medical care.

Several other publications cover a wide range of topics related to children's health, but are more restrictive geographically. Haggerty and his associates (*9*), in an analysis of needs and capabilities of meeting child health needs in Monroe County, New York, based on specific studies in that area, suggest improved organizational and staffing approaches to care. A good part of the introduction addresses the Rochester area, which may be considered an urban setting comparable to many others in the United States. However, as far as the statistics on child health are concerned, Rochester is much richer in resources (doctors, hospital beds, mental health services) than the United States in general, even though the data on illness and unmet needs may be very like what has been found in other places. The number of physicians in relation to the rest of the population is high, but people complain nevertheless of the difficulty of reaching physicians; pediatricians show a higher number of office visits than their counterparts in other parts of the country and spend about 10 minutes per patient. This is taken to mean that to expand the preventive services and health promotion activities, more nonphysician professionals may be needed.

They write, "resources... are poorly distributed... needs are not universally well met. The greatest challenge lies in creating a more efficient means of organizing these existing resources than in expanding them."

Regarding needs the report states, "The need for intensive, complete, and sustained counseling for many of these families is apparent, yet it is equally evident that such assistance is frequently lacking." Nonwhite infant mortality rates, although below the national average for nonwhites,

were consistently higher than the white rates in the county. By socioeconomic grouping, new tuberculosis cases occurred 10 times more frequently in the lowest area than in the highest.

An important contribution of this group of investigators was the development of the concept of the "new morbidity." This includes, "such problems as behavior disorders among preschoolers, inadequate functioning in school, and the management of adolescents' adjustment difficulties." They continue, "Underlying some of the new morbidity are problems arising from modern society such as social and geographic mobility, crowding, high-rise living, and urban decay. Other problems (alcohol, drugs, venereal disease) are old, but their diffusion to younger and younger age groups and the lessening of social controls make them concerns for pediatricians and parents."

As far as utilization data are concerned, a 3 percent sample of all the babies born in Rochester hospitals (presumably of indigent families, with no regular physician) during a 1-year period was used to estimate the kind and volume of well-baby care, both needed and available, received by indigent populations. "Less than 10 percent of these babies receive a level of health supervision that is considered adequate by Rochester pediatric standards, and less than 1 percent receive the level recommended by the American Academy of Pediatrics." Ironically, these are the infants who are most in need and would benefit the most from screening procedures, counseling for mothers, and immunizations. The study group compares the figure of 10 percent with other, admittedly scant data, from more affluent populations, such as the 33.5 percent who receive prenatal care in New York City and the 43 percent in a rural New York community. They recommend hospital-based public health nurses to bring more families into contact with a well-baby system.

They found that Medicaid did not change the health care patterns of the poor, although families did express relief at the alleviation of the burden of high-cost medical care. The unchanged pattern was partly the result of the unwillingness of many physicians to participate in the Medicaid program—either on philosophical grounds or because of the inadequacy of reimbursement. Much more will have to be done to make Medicaid an effective instrument for improving the health care of poor children. Any action should include consideration of organization, transportation, outreach, and health care staff changes.

Furthermore, "removing the barriers to the organization of health care for the disadvantaged—urban and rural—will need to proceed from mere organization of care to a study of the political process involved."

The book also deals with the preparation of a new type (for Rochester) of pediatric nurse practitioner, who provided a successful staff model for enlarging pediatric care: "...the largest single addition of pediatric manpower in the past five years..." Other new health professionals were also trained and participated in the program, including a family counselor and a psychodiagnostic assistant.

The conclusions of the Rochester study range from the need to educate pediatricians to the use of these new and useful associates. Suggestions are made to change pediatricians' concepts of the job to be done.

Other area-specific studies of unmet child needs are published from time to time, such as the Lash and Sigal (*10*) New York study which also found health resources inadequate in both quantity and distribution to meet special health needs of certain population groups. In a review of the Early Periodic Screening Diagnosis and Treatment program (EPSDT) for poor children, the authors reiterate the special needs of poor and minority group children, and the failure of Government programs to meet their responsibilities (*11*).

For statistical background, the annual annotated "Health: United States," published by DHHS, particularly its section on "Health Status of Minority Groups," is especially good. A series of tables graphically illustrates the sordid story of neglect and inequity that results from national policy in response to the needs of poor and minority children. Other Government publications include DHEW's "Legislative Base: Maternal and Child Health Programs" (*12*); "Supplement" (*13*); and "Report on Federal Government Programs That Relate to Children" (*14*). Neutral in tone, the latter outlines the limitations of the Government's approach to meeting children's health needs and suggests wider coordination and extension of responsibilities.

A report of the Children's Defense Fund also briefly recounts tragic instances of the health care system's failure to meet children's needs, buttressing the narrative with statistics. In conclusion, it states, "Health services make a difference in the incidence of death and disease, but they also make a difference in the quality of life we lead. . . . Any citizen who is concerned about the kind of society we live in must recognize that a full range of child health services should be available to all rather than available to some on the basis of income or race" (*15*).

America's Children and Their Families is another very useful compilation of data also available from the Children's Defense Fund (*16*).

A sampling of other recent publications reveals an abundance of data on prenatal care and infant mortality; almost as much on the "newer morbidity," child abuse and neglect; drug abuse; teenage pregnancy; and grave concern about rising rates of teenage suicide. Grossman believes the "new morbidity" is very much a problem of upper income groups (*17*). Nevertheless, poverty dominates the picture of children's health needs. An inverse relationship exists between social class and infant mortality (*18*). Access to services by young children in low-income urban areas is limited (*19*); regular sources of care offer better chances of obtaining preventive services (*19, 20, 21*). Lifestyle differences accounted for significantly different health status of poor inner city children compared with suburban youngsters (*22*). Poor children tend not to have insurance coverage, limiting access to care; poverty and race outweigh even the availability of resources in their effects on infant mortality (*23*). Income group differences mask mental health needs of children by virtue of "needs hierarchy"; physical illness takes precedence in the need for care (*24*). Adamchak has published a broad review on the relationship of infant mortality to socioeconomic status (*25*).

Race and minority status have the same effect as poverty and are reinforced by it.

Mortality rates for blacks are twice that of whites for children under 6. For diseases, black rates are higher for all age groups. Among blacks, dentist use rates are lower, as are private physician use rates (*26*). Only half as many black as white pregnant women began their prenatal care in the first or second month, and almost 4 times as many black as white pregnant women had no prenatal care (*26*). As much as 76 percent of perinatal mortality can be associated with delays in prenatal care (*27*). Chase and Nelson (*28*) found 50 percent to 150 percent higher infant mortality if the first prenatal visit was made *after* the 11th week of pregnancy, or if no visits were made. However, the Collaborative Perinatal Mortality Project (*29*) found the underlying causes in pathologic states, not social considerations: amniotic fluid infections, abruptio placentae, premature rupture of the membranes, congenital anomalies, and the like. Whether further study would relate the pathophysiological events to poverty and race is questionable (*30*). Gortmaker did show, in his analysis of New York City births, that insufficient prenatal care was not of itself sufficient to increase the probability of higher infant mortality, but that poverty and minority status *associated* with lesser prenatal care increased the probability of lower birth weight babies. This status added to the probability of higher infant mortality (*31*).

Bruce et al., in their study of a regional perinatal network with statistics on pregnancy outcomes of unregistered mothers, found a definite correlation between low birth weight and poor Apgar scores (*32*).

Goldenberg (*33*), reporting on the condition of maternal and child health in Alabama, notes that nearly one-third of the women and children could not afford to use private physicians for preventive and medical care; that blacks had twice the infant mortality of whites; children born to teenage mothers and mothers in rural areas had higher infant mortality rates than expected; and that higher infant mortality rates were geographically related to lower utilization of prenatal care. Health departments were understaffed, lacked sufficient physician involvement, and were housed inadequately. Coordination was lacking among health clinics, doctors' offices, and hospital services. This report might be a description of defects and deficiencies in the United States as a whole.

Handicapped children with special medical needs live largely in poverty; in addition, surprisingly, 15 percent do not live with parents (*34*). Foster child medical care needs have received insufficient attention.

Immunization, although reasonably successful in reaching school-age children (*35*), has not been as successful with younger children (*26*). In children 1–4, only 63 percent were immunized against measles, 62 percent against rubella, 68 percent against DTP, and 61 percent against polio. This lack of immunization is ascribed to "public apathy" by the health professionals and the medical literature (*36*). Difficulties in obtaining immunizations inherent in the system are not mentioned. A great deal is made of the administration program to offer financial support to State and local health departments as incentives.

A great many papers appear on the subject of social and behavioral contributions to morbidity, many on the psychological dimensions of illness and apparent increases in incidence of illness. A comprehensive

review by Gershenson (*37*), although brief, covers most aspects of the subject. He underlines the *family* morbidity aspect with the consequent need to coordinate pediatric and social agency efforts at case-finding, prevention, and treatment. Nevertheless, professional insularity still results in focusing on the pediatrician (*38*).

Other aspects of the "new morbidity" are reflected in statistics on illegal drug use by 24 percent of junior high school students in one study (*39*). Among the largely minority group Job Corps enrollees, 53 percent were current users of alcohol, 29 percent current users of marijuana, 5 percent of hallucinogens, and 2 percent of opiates (*40*). A junior and senior high school survey in 10 cities showed a high correlation—24 percent—between drug use and alcohol use on a regular basis (*41*). Mexican-American children aged 9–17 were 14 times more likely to use abusive substances than their Anglo peers (*42*). The latest report from NIDA, entitled *A Drug Retrospective: 1962–1980* (not yet released) underlines the growth of teenage use of illegal drugs. Marijuana use increased from 4 percent to 68 percent in the period covered; the number reported to have tried opiates and cocaine at least once increased from 3 percent to 33 percent. Furthermore, the report states, "The Institute cautions that both the *Survey* and the *Drug Retrospective* underestimate true use."

All reports mention that family instability and family conflict are associated with greater incidence of illegal drug use.

Another adolescent problem is the increase in teenage pregnancy, referred to as an "epidemic" by some. The psychosocial reasons behind this increase are a matter of speculation: anomie, peer pressures, family situation (*43, 44*). Declining marriage rates in the last decade may be one factor in the increased number of pregnancies among unmarried adolescents—one-third higher in 1976 than in 1971—but failure to use contraceptives consistently must also play a role (*45*).

The fact of teenage pregnancy, whether it has actually increased or not, is generally agreed to have morbid consequences and therefore needs to be better understood and dealt with. Teenage mothers are more likely to come from abusive homes and be abusive or neglectful of their children than other mothers. The economics of family support in the United States generally prevent a child in a teenage parent home from getting adequate support for optimal growth and development. Early pregnancy interrupts the education of young parents—perhaps permanently—in a social setting that rewards educational achievement, demands higher educational standards for higher income jobs, and punishes poorly prepared or unskilled workers (*46*).

One-third of the abortions performed in the United States in 1977 were for those under 19 years of age—mostly, of course, for those between 15 and 19 (*47*).

The health and medical needs of adolescents are different from those of other population groups. For instance, in an ambulatory care center 12 percent of young people had venereal disease; in a detention center 30 percent were drug abusers and 6 percent had venereal disease; and in one high school 35 percent had dental caries. Those living away from home had significant dermatologic problems (including 80 percent with acne, eczema, and other such conditions) and dental caries. In short, a variety of

unmet needs found among adolescents reflects a gap in services aimed specifically at their needs (*48*).

More seriously, a general analysis of overall statistics reveals rising rates of new and old morbidity conditions among adolescents. Alcohol and drug abuse are increasing, as is cigarette smoking. Sexual activity is increasing among the young. Eighteen percent of 15-year-old girls reported having had sexual intercourse at least once; because unprotected intercourse is not uncommon, adolescent pregnancy, as noted, has increased accordingly. Sexually transmitted diseases are virtually epidemic among adolescents; the case rate for 15–19 year olds is three times what it was two decades ago. The majority of deaths of adolescents are related to behavior rather than infections or other illnesses. Accidents and violence, including suicide and homicide, accounted for 70 percent of the deaths of those 12–17 years of age and for 77 percent of the deaths of youths 16–17 years of age (*49*).

Waldron and Eyer (*50*) tie the rise in death rates to socioeconomic conditions which have resulted in tension, stress, anxiety, and "overwhelming life problems" leading to the increased use of drugs and alcohol that, in turn, contributes to the rise in homicide, suicide, and motor vehicle accidents. Unfortunately, their analysis is based on the diaries of college students and is hardly generalizable to all adolescents, or even to all college students. Nonetheless, the steep rise in adolescent suicide requires urgent attention. It is now the third leading cause of death among 15–17 year olds and is probably underestimated at that because of reluctance to report it (*51*). Crumley believes the social class of adolescents who attempt suicide is recognizably different from that of other adolescents. He urges efforts to determine the nature of these differences so they can be identified and the suicides averted (*52*).

Child abuse and neglect, although not new discoveries, have received increased attention. The first international conference on the subject was held in 1976. A variety of considerations as to etiology (*53*), prevention (*54*), and control (*55*), have been offered. In general, the etiological factors are part of the "new morbidity" and the result of parents unprepared for parenthood, social pressures, and fear (*44*).

One area of conflict that may contribute to a redefinition of health services for mothers and children is partly the result of the feminist movement. It is epitomized in the controversy over home birth versus hospital delivery. The current number of home births is still relatively small (*56, 57*). The growing technological character of obstetrics, including mechanization of hospital procedures, anesthesia, induced labor, increasing numbers of caesarean sections, and electronic fetal monitoring, reflects a growing depersonalization; such procedures can actually be dangerous as well (*58, 59*). Many women are growing dissatisfied with such services. This dissatisfaction has given rise to fear on the part of physicians that childbirth will pass out of medical hands as women begin to demand that physicians be servants and not masters of pregnancy. In short, many persons believe that, although some pregnant women have conditions that may require medical care, pregnancy is not a pathological condition requiring constant medical intervention. Physicians, obstetricians, neonatologists, and geneticists are not convinced. An American

Medical Association conference report on "antenatal diagnosis" disposed of contrary evidence and endorsed ultrasound, amniocentesis, electronic fetal monitoring, fetal lipid determination from amniotic fluid, and direct fetoscopy, all within the limits of prescribed standards. It implied that all deliveries must take place in hospitals under specialized professional supervision (*60*).

Despite technological advances, child care in the United States lags behind that in European countries, where family allowances and social services are provided, as is universal access to preventive and medical care. In this country, focusing less attention on the mechanical aspects and more on the social, psychological, and economic may be sufficient to lower infant mortality rates and improve child health in general. However, the occasional journal article gives pause. A piece in the New Zealand Medical Journal on illness and health care during the first 16 weeks of life is not reassuring in that country where economic barriers to care do not exist. It reads, "A significant relationship exists between all measures of social background and the risk of respiratory illness. Children from families of low income, children of solo parents, of non-Caucasian parents, and of mothers with low education had a significantly lower incidence of immunization at 16 weeks of age" (*61*). Although nearly 98 percent of the population examined conformed to a healthy utilization pattern, as seen by public health nurses and physicians, socioeconomic factors continued to play an important role in barring others from care.

Even more disconcerting is the recent evidence from the USSR on the rise of one-third in rates of infant mortality between 1971 and 1976. The USSR has devoted enormous resources to maternal and child care and to eliminating economic barriers to access. Nevertheless, rural rates of infant mortality are as much as 12 percent higher than urban rates. Regional differences exaggerate the rural-urban differential (18.3/1000 live births in Estonia compared with 49.1 in Turkmenistan). Explanations are sought in the high rate of alcoholism in the Soviet Union and in the higher infant mortality found among pregnant women who do manual labor throughout pregnancy. It has been suggested that frequent abortions (an assumption from the data in the USSR) may damage the reproductive tract. More significant may be the evidence that prenatal services are underutilized; formula feeding is very much on the increase; certain social factors suspected of being related to infant mortality such as divorce and illegitimacy are on the increase in the USSR; and that children's institutional care is far from adequate and subject to overcrowding, poor sanitation, and poor supervision. Soviet professional journals also criticize the quality of medical institutions and the care they provide. The study concludes that increases in the quantity of medical services are not enough (*62*).

The overwhelming impression upon reading the literature is that social factors are critical determinants of the use of prenatal care and of preventive services for children; that these social factors operate despite the provision of and ready access to medical care services; that these social factors themselves may have an important influence on the health of children; that technological excellence is useful but not decisive in reducing maternal and infant morbidity and mortality.

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With regard to the utility of prevention itself as a factor in health, more evidence seems to be needed on the value and kinds of nutritional programs needed to prevent low birth weights, prematurity, and associated infant mortality. The role of exercise and working during pregnancy also needs to be determined (*63*). The value of other preventive measures is also questionable (*64*). Fielding (*65*) conspicuously avoids discussion of prenatal care and other preventive measures in childhood in his article, "Successes of Prevention." The economic value or cost benefit of prevention have also not been addressed in the area of childbirth and infancy except for clear-cut examples such as phenylketonuria discovery and congenital hypothyroidism (*66*).

Spitzer and Brown (*67*), reviewing the benefits of various screening procedures, came to the conclusion that some well-established conditions can be found early and prevented; they believe preventive services should be focused on these conditions. Some general prenatal services are not included, but the search for Rh incompatibility, phenylketonuria, and congenital lesions is both clinically and economically effective.

Grossman and his colleagues at the National Bureau of Economic Research have published a provocative series of papers on prevention and its impact on child health. They are much less sanguine, and their data are persuasive. They believe prevention can be stimulated by economic incentives, but that education of the mother is the key element in the use of preventive services. Furthermore, they believe only birth weight and infant morbidity are significantly associated with preventive measures (*68, 69, 70, 71, 72*).

Prevention is a desirable goal. Insufficient evidence to that effect exists, however, because of the multicausality of many conditions and because of insufficient evidence of benefits. The gospel of prevention is based more on common sense than on experimental proof. Perhaps this circumstance also explains why preventive services have so little fiscal priority. "Experience has indicated that as long as preventive services must compete with treatment services for support from the same funding stream, they are at a disadvantage" (*73*).

PATTERNS OF USE OF CHILDREN'S HEALTH AND MEDICAL CARE SERVICES

Examination of the literature on utilization of health and medical care service recapitulates and reinforces the impression left by the literature on needs. Poverty, minority group membership, and rural residence impede access to service and are associated with reduced use, even though evidence suggests that those populations are most in need. Among a small group of families of Mexican-American ancestry in Michigan, cultural barriers as well as environmental ones were found, characterized by lack of transportation, reliance on folk medicine, and lack of understanding of the mores of the larger society (and vice versa) (*74*). Language as a barrier is discussed by Quesada (*75*). Dental service utilization and the wide gulf in utilization between majority and minority groups are tabulated by Douglass and Cole (*76*), and specifically with regard to Chicanos by

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Garcia and Juarez (*77*). Both articles make the point that income is not the sole factor in lower utilization of dentists, but that educational level and high status occupation increases utilization under dental insurance, for example. Folk attitudes also represent barriers to effective use of dental care. Douglass and Cole emphasize the value of in-school dental services. They note, however, that these services may not result in better lifetime utilization, although they may reduce the ultimate dental need.

As far as socioeconomic factors of utilization are concerned, sociologists disagree as to whether class produces cultural differences in demand or whether the factors are purely economic. Earthrowl and Stacey (*78*), in a study of parental attitudes toward hospitalized children, conclude that the latter is true. McKinlay earlier bridged the opposing views by postulating that the economic precariousness of lower income groups, their greater residential instability, and their diminished opportunities insulated them from middle class values (*79*). The McKinlays confirmed this hypothesis in a study in Aberdeen of antenatal care users. They found that underutilizers had different familial characteristics not entirely attributable to social class and that these characteristics derived from economic causes (*80*).

The argument is complicated by evidence of greater need among the poor and higher rates of illness and disability. The increased utilization since the introduction of Medicaid may continue to mask underutilization (*81, 20, 82, 83*). Dutton analyzes utilization versus need factors—especially with regard to children—in exquisite detail. She pinpoints an additional factor, often overlooked in the discussions: the impact of the delivery system. Group practices outperform the outpatient and emergency rooms of hospitals in providing services, a matter of importance in the later discussion of organizational impact on child health services. Butler and Scotch also conclude that removing the financial barriers to care only partially solves child health service needs (*83, 84*).

Nevertheless, removing financial barriers is important in itself. The effectiveness of Medicaid is demonstrated by the increased utilization of health services by low-income people—although it is noteworthy that among poor children increased utilization was more modest than among older groups. A study of the effects of the "negative income tax" in New Jersey showed that the use of health services did not increase significantly despite increased availability of money (*85*). The difference in utilization may be a result of priorities for cash expenditure as compared with the use of services where no exchange of money takes place.

Rabin and Schach (*86*) noted an increase in use of health services among a Baltimore Medicaid population regardless of the variables measured, including illness and well visits. Use of preventive services increased as well, despite the accepted view that the poor have no "future orientation" and do not use preventive services. Skinner et al. (*87*), studying a "near poor" population (at or below poverty level, but above the Medicaid eligibility level), found that utilization of services, despite serious and chronic illness, was considerably less than that of the Medicaid population, except when enrolled in an HMO where care was available without added cost. The Baltimore studies included only adults, so the possible impact on children cannot be wholly ascertained. The

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observation of a Canadian psychiatrist and epidemiologist who examined child patients of psychiatric services in Ottawa parallels this finding. He points out that use of psychiatric services in general is lower in Canada than in the United States, but since the introduction of National Health Insurance in Canada poor children there have used such services more than children in the United States. Because he doubts there is any real difference in prevalence of psychiatric disorder among the children in the two countries, he believes the elimination of the economic barrier has corrected a deficiency in access to psychiatric services for poor children (*88*).

As far as utilization of preventive services for children is concerned, the jury is still out as to whether the reasons for lack of utilization are (a) cultural, (b) financial, (c) familial, or (d) more general. In a Wisconsin study, prepaid group practice clearly was clearly used more for preventive services for children than were fee-for-service settings. Furthermore, children in one-child families, children under 5 years of age, and those in households with better educated parents tended to receive greater amounts of preventive services (*89*). The organizational implication of this finding is reinforced by Salkever's economic analysis of data from Baltimore, Vermont, and Saskatchewan (*90*). He writes, "Our results provide some support for the predictions of the economic model concerning the effect of financial and physical access barriers to demand. However, the fact that education, attitudes, and relationship to a regular source of care are the most consistently significant determinants of demand suggests that the current policy emphasis on financial and physical access barriers may be too narrow." A study of a rural area of California with few physicians by Luft et al. (*91*) showed that only need determined utilization and that income, travel time, and attitudes could not be used as predictors of utilization patterns. However, fewer preventive services for children were noted, and educational level did have a significant effect on having a checkup. Luft et al. ascribe the lesser utilization of preventive services to "supply constraint," suggesting improvement of manpower available would correct this.

A Kaiser Foundation study of a prepaid group practice also showed that, although class was associated with health status, need was the most significant determinant of utilization, not socioeconomic class (*92*). However, cost barriers to utilization did not exist, so the conclusion may not be entirely valid because it indicates only that class does not determine utilization *if* cost is not a factor. Curiously, the use of preventive services was related only to educational level. Children were excluded from the study, but it may be assumed that the educational level predicting the mother's use of preventive services for herself would also indicate her utilization of preventive services for her children.

To conclude, utilization is limited to some degree by poverty, minority status, rural residence, and educational attainment. Where the financial barrier to care is eliminated or modified, these other factors appear to have little effect on utilization. Use of preventive services is significantly associated with educational attainment, with type of organization providing services, and with availability, in that order. Because prenatal care is related to birthweight and birthweight is related to healthy or morbid

outcome of pregnancy, the improvement of educational attainment (and health knowledge) and availability of organized medical care services are essential to increasing use of preventive services and related improvement in child health.

ORGANIZATIONAL AND FINANCING ASPECTS OF MATERNAL AND CHILD HEALTH SERVICES—PROGRAM EFFECTS

Major improvements in the provision of both preventive and therapeutic services for children have resulted from improved organization of services. The early efforts such as Maternity and Infancy Care Units and the Children and Youth Care Units stimulated and supported by the Children's Bureau (1978, 1979) have clearly been effective, if only moderately so (*93*). The burgeoning health maintenance organization (HMO) or prepaid group practice movement has been viewed with great optimism as the key to the unification of health care efforts and an improvement over solo practice. A number of useful studies have been reported. Preventive visits are facilitated for children by the elimination of cost to the patient (*94*). This finding is supported by Gray (*95*) and Perkoff, et al (*96*). Evidence suggests that immunization rates are higher because of outreach in HMO's (*97*). Clearly, the existence of the organized setting with its capability for ushering patients into and through the medical care system, along with the elimination of payment barriers at the time of service, has a powerful and positive influence on the utilization of preventive service.

Group practice also favorably influenced care for the poor and minorities, in both inner city settings (*98*) and a rural setting (*99*). The rural services study was based on a hospital-supported system rather than on the typical group practice with prepayment, but the organizational format was similar. Organized group practice is given credit, also, for reducing perinatal mortality (*100*) and for enabling supervision of continuing care in prevention of cardiac complications after rheumatic fever (*101*).

Outreach is a critical element in improving care (*99*). Group practice advantage is ascribed by some observers to the elimination of financial barriers and to improved opportunities for channeling patients by others. Columbo et al. (*102*) reported on the beneficial effect of outreach educational efforts of the Kaiser Plan in Portland, Oregon, in an impoverished and minority population also covered by prepaid group practice. Although the experimental design was criticized (*103*), the increased use of preventive services within the plan could not be faulted.

Some critics are convinced that only organized systems of care will offer the maximum opportunity for preventive services for children; however, data show that the doctor–patient relationship remains a critical factor and should not be overlooked when the organization is developed. In Slesinger's analysis of the utilization of preventive services by urban black mothers, the highest use rate was found among those with a personal physician (*104*). Organized group practices which maintain personal

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physician-patient relationships may fulfill this requirement, which clinic practice ordinarily cannot.

Nor is group practice an unalloyed blessing. Tessler and Mechanic (*105*), in their study of satisfaction of clients in group practice, found that some of the bureaucratic factors, like long waiting times for appointments, were sources of dissatisfaction despite clients' otherwise satisfactory experiences. It may be expected that the otherwise improved access obtained by the elimination of payment barriers and improved organization will be offset by the bureaucratic obstacles. If preventive services for children are to be expedited and if access to care for poor and minority children improved, the bureaucratic obstacles must be recognized and dealt with.

An additional organizational hazard to improved access and utilization, and the bureaucratic consequences, are noted by Breslau and Haug (*106*) in connection with delivery of pediatric services in an academic setting. Many of the same operational factors are at work as in group practice: fixed hours, shifting responsibilities for care as patients see different professional workers on successive visits, misfiling of records, and so forth. However, these, of course, are really challenges to effective organization, not arguments against such organization.

Other experimental forms of service organization are reviewed in Adams (*107*), but his conclusions regarding the advantages and disadvantages of centralized versus decentralized mental health service centers for children are neutral. Lewis et al. reported on a school health program in which the children alone were responsible for initiating care and followup (*108*). No change in utilization was noted, but an improvement in children's attitudes and beliefs regarding the health care system did occur. Alpert and colleagues reported a form of pediatric group practice for inner city children which resulted in decreasing hospitalization for these children, increased use of preventive services, and improved care patterns as evidenced by the number of kept appointments (*109*).

Among other types of organization, Novick and his colleagues reported on the conversion of a well-baby health station to a pediatric comprehensive care center which increased utilization of the center, improved comprehensive care for the children, and provided a significant segment of a poor community with a continuing and customary source of care at modest cost. The New England Region developed a combined laboratory service to facilitate the screening of newborns (*110*). The economic value of such screening through preventing the need for long-term care is underlined.

Efforts have also been made to introduce preventive mental health services (*111*) by engaging parents in organized health plans and enlarging the scope of local health departments to carry out preventive efforts. *Psychiatric News* reported the organization of a new institution "The National Center for Clinical Infant Programs," where distinguished child psychiatrists have come together to promote the prevention of children's mental illness. A similar movement is afoot regarding child abuse and neglect, with efforts to organize services better and focus on particular health professionals to provide such services. LeBlang (*112*) describes a similar multidisciplinary approach to finding and dealing with child abuse in a "family stress consultation team" in Illinois. The team is a voluntary

agency with referrals from a public agency. The use of voluntary agencies is rarely considered in the United States, despite their success in Europe (*113*). The Dutch Cross societies are outstanding examples of the effectiveness of voluntary agencies in recruiting competent professionals, involving parents in child care, offsetting public bureaucracies, and providing excellent preventive service (*114*). "Historically, public and private providers of health and welfare services have functioned in separate, often incompatible arenas." Burd and Richmond, who worked in a private child guidance center, believe a coordinated effort is the most promising approach (*115*).

Other countries report similar dissatisfaction with child health services that fail to reach all needy children or provide all needed services. The Wynns (*116*) report on Europe emphasized organizational improvements in services in Scandinavia and France. Kewley (*117*), in discussing child health services in Australia, showed that problems in organizing such services are not unique to the United States.

A thoughtful and stimulating approach to current pediatric problems, from a very different perspective, is presented in the George Armstrong Award Lecture, published in the *American Journal of the Diseases of Children*. The author proposes reuse of some neglected and rejected approaches. "Modern medicine," he concludes, "has made many significant advances. Our scientific revolution may hinge on choosing the most promising components from our evolutionary past and testing them against our modern practices . . ." (*118*).

Literature on financing is scarce. Helen Wallace touches on the subject in connection with perinatal care in this country and abroad (*119*), but the best collection of information on reorganizing child health services and the impact of present costs on possible future costs is in the *Harvard Child Health Project* series (*120*).

Other studies of financing have been related to matters such as the impact of cost sharing (*121*), and show that in such a system preventive services are reduced. A study was made of the costs of *ignoring* the prevention of birth defects based on estimates of the costs of treating them (*122*). The multimillion dollar federally supported Crippled Children's program covered only a fraction of the treatment cost because only a percentage of the services were paid for by this program. Wallace (*123, 124*) analyzed expenditures for children's health services, showing them to be primarily a private matter. In 1975 only 15 percent of the cost was paid out of Federal funds. Furthermore, the funds allocated to the States under General Revenue Sharing were hardly used at all for maternal and child health services, despite the fact that neither maternal and child health nor crippled children funds from Title V were increased sufficiently to cope with inflation.

IMPROVEMENTS BY WAY OF MANPOWER CONSIDERATIONS

Chief among the growing number of recommendations regarding change or improvement of child health services is the alteration of

distribution of responsibilities among various health professionals and the training of new or traditional but less widely used types of child care professionals. It has been proposed that the school nurse have an expanded role (*125*) or, more specifically, a role in primary care and more comprehensive care for children in school (*126, 127*).

Some also suggest larger roles for physicians' assistants in child care (*128*), family nurse practitioners (*129*), and social workers (*130*). The pediatric nurse clinician is recommended especially in dealing with abusing parents (*131, 132*). One writer (an epidemiologist) cautions against immediate installation of the pediatric nurse practitioner without a "field trial" and extensive evaluation (*133*). Others in the higher reaches of pediatric professional life urge immediate utilization of the nurses so trained (*134*). Still others continue to suggest that physicians assume more responsibility and adapt to the changing fashions of demand, diagnosis, and treatment for the families of abused children (*135*); in-school health services (*136*); and in providing the needed outreach to unreached families (*137*). A military group analyzed the capability of Army corpsmen as diagnosticians using a physician-written algorithm and found an astonishingly high degree of accuracy (*138*). This promises productive use of nurse practitioners in screening and other diagnostic services.

More specific concerns in the area of organization of services derive from the present firm separation of family-centered child health care (pediatrician, out-patient, or group practice) from the school health service. In part this may be a reflection of the partial and often inadequate services of school health programs. Or it may be the other way around: The partial and inadequate character of the school health services may reflect the determination of Americans to maintain family domination in child health care responsibility. Whatever the origin, the effects are disastrous multiplication of expense, duplication of services, and split of responsibilities. The lack of effective liaison and recognition of shared responsibility results in failure to provide needed services. The shortcomings of existing school health services need no repetition here. However, the fact of the school's importance as a source of information about children's health needs, as a site for establishing primary care services, and as an important focus for health education is, despite long-time recognition, only now becoming the subject of study and new program effort (*138, 139, 140, 141*). The school as an ideal place for identifying child abuse is also suggested (*142*). Some attention is directed toward changing the role of the school nurse, a development noted in the manpower discussion; some is directed at reducing fragmentation in diagnosis and treatment, noted in the organization discussions above. Providing residence training for pediatricians in a school or Head Start program setting may improve interest and coordination in the field (*143*).

One aspect of child health care that is receiving increased attention, over the unyielding objections of the professionals involved, is dental services for school children. An overview by the Dunnings (*144*) of New Zealand's long-time use of dental nurses and newer efforts in Australia, Canada, and Sweden show that these nurses are beginning to have an impact on American thinking. Dental nurse practitioners in the United States would go a long way toward resolving the limited and discriminato-

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ry pattern of dental services for children and could easily become part of a unified school health service.

Some attention should also be paid to the failure of the Government to adequately support child health services. Steiner (*145*) attributes this lack of effective support to public philosophy (no national advocacy group exists), national policy (child development is not a primary national concern), lack of unified Congressional oversight, and lack of coordination in Federal agencies charged with the fragmented responsibilities. No single professional organization provides unified policy, guidance, or accountability.

STRUCTURING A NEW BASE FOR CHILD HEALTH PROGRAMS— RESEARCH AND DEMONSTRATION NEEDS

Attitudes about official responsibility for maternal and child health and medical care services have changed throughout American social history. Along with other aspects of social responsibility, maternal and child health have been seen as primarily a family responsibility; official participation is seen as an encroachment upon family rights, individual privacy, freedom, and individual initiative. Orphans and the poor, over whom the Government has been somewhat grudgingly allowed to extend its protective wing, have been gradually provided more and more services. Even so, argument continues as to the worthiness of the poor to be receiving such help as Government provides; health and medical care services, like other welfare services, are often thought to encourage laziness, fertility, and sloth. In periods of gingerly activity, funds and services have been directed toward specific elements of the population considered deprived or unable to provide for themselves, such as the poor, minority groups, migrants, rural people, or those living in "impacted" areas. Even in such cases, funds and services have been far from generous.

In this century, national demand for special services for mothers and children began with the first White House Conference on Children, under President Taft and after the establishment of the Children's Bureau. Grants in aid to the States for specific child health activities began with the Sheppard-Towner Act in 1922. Title V of the Social Security Act followed. Federal support reached a peak in the 1960's. Large sums of Federal money were appropriated, new programs designed—M&I and C&Y—family planning funded, abortion paid for out of Federal medical care programs.

Because, in the elegant locution of the 19th Century, "form follows function," the structure of maternal and child health services under Federal auspices reflected the goals of its designers. Anyone who could pay was excluded, almost automatically, because of traditional attitudes toward Government paying for any service. If one could afford it, he would presumably want to pay for it himself rather than accept a Government "handout." Conversely, one had to be careful not to pay for those who could pay for themselves, for fear the Government would be

taken advantage of. Legislative language invariably included as a criteria for eligibility for services the words "poor" or "deprived." Sometimes the architects of the legislation managed to write it so that a designated area would be eligible and all those living in that area, regardless of income, might be eligible. If so, regulations written after the law would tend to narrow the eligibility to maintain such exclusiveness.

In many ways, the social attitudes and the legislation reinforced one another. It was thought shameful to use a public service when one could afford to pay for it, and the law specified one had to be "in need." In addition, welfare services, under adverse social or economic conditions, often bore the brunt of the governmental funding constriction following upon the anxieties and fears as well as deprivations associated with them. Entitlement was not permanent, and the content of that entitlement not fixed.

So there have been seesaws: official generosity—carefully hedged about, of course—and lean years. However, in every case, the programs were tailored to implicit values and attitudes about welfare activities; these programs were not universal, but restrictive and monitored to prevent abuse. Universal eligibility was rejected because of the concept of a private sector that was owed, by the Government, the right to care for and charge those who were able to pay. The corollary of these concepts, welfare restriction and private entrepreneurial rights, was that mothers and children were not *entitled* to care. Care was a personal decision: to buy, if financially capable; to seek from guarded public sources if unable to pay. The concepts of outreach to find the needy, for instance, or of insuring care to the unknowledgeable, while not altogether foreign, were not integral parts of any program.

In effect, then, the well-meaning intentions of the loyal and devoted group who campaigned for better maternal and child care were bound to be frustrated to some extent, no matter what the program intention was. The design of the program could never meet the needs for which it was intended. It had to conform to agonizingly paradoxical objectives: in the one case traditional welfare and social objectives; in the other, traditional professional and economic objectives.

Program designs, how ever they have been modified over the years, and program objectives, how ever they have been clarified and adumbrated, suffered from the motivational schizophrenia. In the early days, when prevention was ignored by the medical profession, nurses and private agencies or health departments undertook the task, but only for the poor. As prevention has become fashionable (and to some extent lucrative) and the union of prevention and cure a truism, physicians have demanded control of that area as well. However, inasmuch as prevention is hardly as attractive or as exciting as rare and hopeless diseases, or as lucrative as acute and chronic illnesses, physicians pay little attention to it, and preventive services languish.

While the literature reveals the failure of programs, the persistence of needs, and the continuing disadvantage of poor and minority children, the policy implications of the deficiencies are barely discussed. Consequently, the potential for solution—whether repair, reform, or reconstruction—is

difficult to establish. Arden Miller points to the possibility of new initiatives in local health departments (*146*). Health departments, however, will have to go a long way to overcome their attachment to concepts and resolves developed during the sanitary revolution of a century ago (out of which such departments were born) if they are to meet the needs of the 21st Century.

Therefore, a number of topics merit thoughtful consideration but are barely touched on in the literature reviewed. What shall be the future role of State and local health departments? It has been suggested that States become the vehicle for a radically reorganized approach to child health care with the emphasis on preventive services (*147*). In the Steward and Crafton book, *Delivery of Health Services to the Poor,* the usual recommendations are made, based upon maintaining the traditional child health care system (*148*). However, their discussion makes it clear that they know the system will not respond sufficiently to promote preventive needs. "The current pattern of medical services in the U.S. is oriented toward the treatment of acute and chronic diseases rather than through the provision of comprehensive preventive health care services. The findings from the literature review suggest that a full scale implementation of a program of preventive health care services would require far reaching changes in the context of education for health professionals ... and the organizational and financing mechanisms used to deliver medical services to the general population." These sentiments are echoed in the article by Sundell and Homan (*73*). Not just a new deal, but a new deck to play with may be required in this game.

Schaefer proposes that not only health system change is required, but a full scale "Child Development Program," with a sufficiently wide range to include parent education and many different types of workers (*149*). The failures of EPSDT and the recognition of the need for many more highly specialized assessment centers as followup for screening procedures are underlined in the requirements of the recently mandated program for education of the handicapped. Public Law 94–142, with its requirement that appropriate educational opportunities be provided for handicapped children, demands that appropriate screening and assessment be done to ensure that every child in need of services is appropriately handled. A great deal more will have to be done than we are now doing to meet this obligation (*150*). The old fragmented ways will not do.

Attention has been paid to social and psychological factors that influence children's health, families' attitudes, and treatment of children, as well as how they affect access to care. However, something also must be said about newly recognized environmental factors that may have a baleful influence on the child's health and future life—environmental contamination. This contamination extends to considerations not only of lead, for example, but also of parents' working environment, from where carcinogens or other toxins may be brought home, and whether such toxic agents in the workplace may influence the genetic substance of mothers or fathers (*151, 152*).

A good deal of investigation will also have to be done to determine what preventive and therapeutic services children will be entitled to even before the improved system for child health services can be designed.

- What elements in the social and psychological makeup of the family (what makes them "vulnerable," for example) can be clearly identified?
- Which environmental factors need to be avoided during pregnancy, in child care, and even earlier, if the genetic material itself is at risk?
- How can the rise in teenage suicide be accounted for?
- What social programs such as nutrition and family grant support are most critical and might be most useful for community experiments?
- What economic studies can establish costs for various modifications of child health service programs? Showstack et al. (*153*) review fee-for-service reimbursement and come to the conclusion that we must "create a more uniform, rational, and efficient system of paying for physician services that will be based on the goals of high quality, accessibly, and efficiently delivered health care."

SUGGESTIONS FOR RESEARCH AND FOLLOWUP

The fact that the bulk of papers presented since 1975 and books published in regard to child health simply shore up earlier descriptions and analyses rather than provide new views, concepts, or proposals is a significant finding in itself. It suggests that we already have as much information as—and perhaps more than—we can effectively process regarding the problems and needs in the area of children's health. The poverty of imagination, or lack of variation on earlier responses to the problems, suggests that the difficulty in implementing improved child health services and remedying the deficiencies in child health in the United States do not arise from lack of information as to what needs to be done or what can be done. The difficulty lies with social policy, attitudes toward children, and innate defects in the structure of the medical care and health services system.

Policy studies of child health services are relatively rare. Except for the publications from the Yale Health Policy Project, occasional pieces in the Harvard Child Health Project, or such commentaries as the Newberger et al. essay, no one has challenged the status quo of child health service programming. Sir Oliver Lodge once noted that the last thing a deep sea fish would discover would be water. The basic beliefs upon which existing child health service programs are founded and proposals for improvement or modification based on those beliefs need to be examined. The primary research effort should address (a) universal child health programming versus a universal health program as a national policy, (b) within that, exploration of social attitudes toward children that obstruct or might facilitate effective programming, and (c) political factors that influence change with particular reference to children's services.

A series of topics suggest themselves as fitting into the rubric of policy studies:

- The economic value of prevention in childhood and the long-term

effects of preventive services on children and the adults they become.

- The suggested preventive measures and their effectiveness, including outreach, family guidance, special attention to vulnerable families, and school health education procedures.
- Sociological attitudes toward children and sources of difficulties in developing national advocacy organizations and measures for children.
- Professional sacred cows such as the clinical and cost effectiveness of a unified preventive–curative service versus separate preventive and curative service. Are physicians necessary in a preventive program for children? What about pilot home birth programs to be assessed?
- Recognizing that collective services are administered better than individualized provision of services, what should be the nature of the group structure and how large should it be? What is the optimal composition? What kinds of training within disciplines lead to greater cooperation among disciplines?
- What kinds of cost estimates can be made of the operation of various programs? What sources of funding should be tapped? How can public and private resources be combined to guarantee fiscal solvency?
- Public roles and the structuring and restructuring of health department activities, including the roles of nurses, doctors, midwives, and others.
- Private roles including considerations of a voluntary agency structure for child health. Nonprofit or profit? Community based, indepedent self-forming groups, standards for charter or licensing?
- National, State, and local organization and control including consideration of a national organization with regional, artificial geographic limits?
- Considerations of ethnic and cultural diversity in planning and implementing programs: pluralism in program design or uniformity of design and pluralism in staffing and operations?

The White Report concludes with a series of recommendations that derive from the overall interest of the investigators as much in child development as in child health, but the recommendations are not very different from the above. Social factors have an impact on child health that is not clearly understood. Some of the needs, for instance those related to malnutrition, would not exist as medical problems if effective social action ensured proper feeding of all children. Should such action be financial (family allowances), nutritional (feeding programs for children plus nutritional education in the schools), or a combination? Will this in turn reduce morbidity and mortality from infectious disease, regardless of whether there is (a) added impetus to an immunization program, or (b) a comprehensive program of child medical care services to ensure immunization as well as treatment once a child is sick? We can only know by trying to control the results in field trials of great magnitude. Perhaps an existential approach is better. Can we get sufficient commitment and action to provide social programs that would guarantee a nutritional

result? Doubtful. A large scale pilot program? Possible. We should try. Can we reform the medical care service system for children to accomplish as much as that system can provide? Possible. Let's try.

White et al. note "a basic characteristic of this field: the inseparability of problems from the services designed to solve them." Therefore, their recommendations include questions to be resolved on *coordination* of health services with other services such as education and day care. They would like to see research directed at *priorities* if choices have to be made. What areas of intervention are crucial, and should be attacked first? (prenatal care? preschool? medical care?) If choices must be made, are there groups of children who should have priority? The poor? The minorities? The handicapped? Can the system be better changed by influencing the larger medical care system than by focusing on children's services? (Financing? Manpower? Community involvement?) It does not resolve the dilemma of universal versus targeted action. However, experience with targeted problems suggests that two classes of care eventually result.

Their recommendations therefore aim at several tiers: improve and increase nutritional programs, improve and extend existing child health programs, develop comprehensive medical care programs, and diversify pediatric manpower.

Clearly, the White Report aims at *action*. It does not ask for more study or more research. The same is true of the Children's Defense Fund Report. It takes for granted that the deficiencies most seriously affect the poor, the minorities, the rural isolated children. It recommends changes in financing to ensure universal eligibility, comprehensive benefits, incentives to use the most suitable care, outreach and support services, and special assistance for hard-to-serve areas.

The Newberger et al. essay poses a few questions that would benefit from research, such as, "To what extent will efforts to improve the health and quality of the life of our nation's children succeed in making their lives more productive and happy?" However, the essay also is a "how to" exercise. Enough is known, it is time to act. "The evidence is unequivocal that poverty and/or membership in a racial minority not only increase the likelihood of a serious or fatal physical or mental health problem, but appear also to compound the negative effects of virtually all the conditions which predispose a child to further risk." Furthermore, "Children's health and productive functioning are embedded in a social and economic context which can support or inhibit the development and the expression of their innate potential."

In short, previous collectors and assemblers of the literature regarding child health needs have reached similar conclusions: Social commitment to children is lacking in terms of financial and nutritional support and the like. The literature pleads for equity in the provision of and access to health and medical care services for all children. Such proposals do not usually deal with critical judgment of traditional solutions, but recommend *more*—more money, more staff, more distribution of existing plans and programs, more organization, more of the same.

Leonard Blumberg, in a casual comment as part of a book review (*154*) struck a chord: "The changes that social reformers seek might be

fundamental if they were instituted all at once, but they are committed to incrementalism; they argue that they are defending the highest values of the society. In short, they are moderates parading in radical clothing."

The above recommendations for research also reflect recognition of the long-standing character of the findings—that poverty and minority status stand in the way of good health and of good care when health breaks down and that maldistribution of resources impedes solution. Given the bits of evidence from the few policy studies that have been made, the solution will not be found in "more." However, to determine whether more of something is in order, and what else might be done or in what way, these research suggestions have been made. A proposal is made for testing different *structural* solutions as well.

References

(1) White, S. H., M. C. Day, P. K. Freeman, S. A. Hartman, and K. P. Messenger. *Federal Programs for Young Children: Review and Recommendations.* Washington, D.C.: U.S. Government Printing Office, Superintendent of Documents (OS)74–101, 1973.

(2) Newberger, E. H., C. M. Newberger, and J. B. Richmond. "Child Health in America: Toward a Rational Public Policy." MMFQ 54(3): 249–298, Summer 1976.

(3) Keniston, K. and the Carnegie Council on Children. *All Our Children.* New York: Harcourt, Brace, and Javanovich, 1977.

(4) U.S. Department of Health, Education and Welfare. *Health—United States 1979* Washington, D.C.: U.S. Government Printing Office, DHEW Publication No. (PHS) 80–1232.

(5) Kempe, C. H., F. N. Silverman, F. B. Steele, W. Droegemmiller, and H. K. Silver. "The Battered Child Syndrome." *Journal of the American Medical Association* 181(17), 1962.

(6) White, S., M. C. Day, P. K. Freeman, S. A. Hartman, and K. P. Messenger. "Federal Programs for Young Children: Reviews and Recommendations." Washington, D.C., Superintendent of Documents, (OS) 74–101, 1973.

(7) Harvard Child Health Project Report. *Volume 1: Toward a Primary Medical Care System Response to Children's Needs, Volume 2: Children's Medical Care Needs and Treatment, Volume 3: Developing a Better Health Care System for Children* Cambridge, Mass.: Ballinger, 1977.

(8) Aday, L. A., R. Anderson, and G. V. Flemming. *Health Care in the United States: Equitable for Whom?* Beverly Hills, Ca.: Sage, 1980.

(9) Haggerty, R. *Child Health and the Community.* New York: John Wiley and Sons, 1975.

(10) Lash, T. W. *State of the Child: New York City* New York: Foundation for Child Development, 1976.

(11) Children's Defense Fund. *ESPDT: Does It Spell Health Care for Poor Children?* Washington, D.C., Children's Defense Fund, 1977.

(12) U.S. Department of Health, Education, and Welfare. "Legislative Base: Maternal and Child Health Programs." Washington, D.C.: U.S. Government Printing Office, DHEW Publication No. (HSA) 75–5011, 1975.

(13) U.S. Department of Health, Education, and Welfare. "Supplement."

(14) U.S. Department of Health, Education, and Welfare. *Report on Federal Government Programs that Relate to Children.* Washington, D.C., U.S. Government Printing Office, DHEW Publication No. (OHDS) 79–30180, 1979.

(15) Children's Defense Fund. *Doctors and Dollars are Not Enough: How to Improve Health Services for Children and Their Families.* Washington, D.C., 1976.

(16) Children's Defense Fund. *America's Children and Their Families.* Washington, D.C., 1979.

(17) Edwards, L. N. and M. Grossman. *Income and Race Differences in Children's Health.* National Bureau of Economic Research, p. 308, 1979.

(18) Antonovsky, A. and J. Bernstein. "Social Class and Infant Mortality." *Social Science and Medicine* 11: 453–470, 1977.

(19) Wan, T. T. H. and L. Gray. "Differential Access to Preventive Services for Young Children in Low-Income Urban Areas." *Journal of Health and Social Behavior* 19: 312–324, September 1978.

(20) Aday, L. A. "Economic and Noneconomic Barriers to the Use of Needed Medical Services." *Medical Care* 13: 447–456, June 1975.
(21) Andersen, R. and L. A. Aday. "Access to Medical Care in the United States: Realized and Potential." *Medical Care* 16: 533–546, July 1978.
(22) Wechsler, H., N. H. Gottlieb, H. W. Demone. "Lifestyle, Conditions of Life, and Health Care in Urban and Suburban Areas." *Public Health Reports* pp. 477–482, September–October 1979.
(23) Brooks, C. H. "Infant Mortality in SMSAs Before Medicaid: Test of a Causal Model." *Health Services Research*, 3–15, Spring 1978.
(24) Johnston, S. A. and J. E. Ware. "Income Group Differences in Relationships Among Survey Measures of Physical and Mental Health." *Health Services Research* 11(4): 416–429, Winter 1976.
(25) Adamchak, O. J. "Emerging Trends in the Relationship between Infant Mortality and Socioeconomic Status." *Soc. Biology* 26(1): 16–29, Spring 1979.
(26) Rice, D. P. and K. M. Dunchik. "Tables and Charts for Changing Needs of Children: Disease, Disability, and Access to Care." Paper presented at the Annual Meeting of the Institute of Medicine, October 25, 1979.
(27) Scott-Samuel, A. "Delayed Working for Antenatal Care." *Public Health* 93(4): 246–251, July 1979.
(28) Chase, H. C. and F. G. Nelson. "A Study of Risks, Medical Care, and Infant Mortality: The Education of Mother, Medical Care, and Condition of Infant." *American Journal of Public Health* 23: 27–40, September 1973.
(29) Naeye, R. "Collaborative Perinatal Mortality Project." *American Journal of Public Health* 69: 857–861, September 1979.
(30) Naeye, R. "Causes of Fetal and Neonatal Mortality by Race in a Selected U.S. Population." *American Journal of Public Health* 69: 857–861, September 19 .
(31) Gortmaker, S. L. "The Effect of Prenatal Care Upon the Health of the Newborn." *American Journal of Public Health* 69: 653–660, July 1979.
(32) Bruce, S. L., R. H. Petrie, A. M. Williams, and S. Chao. "Unregistered Obstetric Parents: Factor in Perinatal Losses in Regionalized Perinatal Network." *New York State Journal of Medicine* 79(9): 1374–1377, August 1979.
(33) Goldenberg, R. L. "Maternal and Child Health in America." *Journal of the Medical Association, State of Alaska* 13–16, 28–29, 44, March 1979.
(34) "Survey of Disabled Children Under SSI Program." *Social Security Bulletin* 43(1): 9–13, January 1980.
(35) "90 Percent of Youngsters Reported Immunized." *Hartford Courant:* 30, September 10, 1979.
(36) Schultz, D. "Why Childhood Diseases Are Coming Back." *New York Times Magazine* pp. 136, 137, 148, 152–154, May 7, 1978.
(37) Gershenson, C. P. "Child Maltreatment, Family Stress, and Ecological Insult." *American Journal of Public Health* 67(7): 602–603, July 1977.
(38) Wilcox, K. "Child Abuse: An Approach for Early Diagnosis." *The Journal of Family Practice* 9: 801–806, 1979.
(39) Aahalt, H. S. and M. Klein. "Drug Abuse in Junior High School Population." *American Journal of Drug Abuse and Alcohol Abuse* 3(4): 589–603, 1976.
(40) Myers, V. "Drug Use Among Minority Youth." *Addictive Disease: An International Journal* 3(2): 187–196, 1977.
(41) Block, J. R. and N. Goodman. "Illicit Drug Use and Consumption of Alcohol, Tobacco, and Over-the-Counter Medicine Among Adolescents." *International Journal of Addiction* 13(6): 933–946, 1978.
(42) Padilla, E. R., A. M. Padilla, A. Morales, E. C. Olmedo, and R. Ramirez. "Inhalant, Marijuana, and Alcohol Abuse Among Barrio Children and Adolescents." *International Journal of Addiction* 14(7): 945–964, 1979.
(43) Kandell, N. "The Unwed Adolescent Pregnancy: An Accident." *American Journal of Nursing* 72(12): 2112–2114, December 1979.
(44) Smith, S. M. "Psychiatric Characteristics of Abusing Parents." In *Child Abuse: A Reader and Source Book*, C. M. Lee, ed. New York: Open University Press, 1978.
(45) Junby, P. "Minors Present Major Pregnancy Problems." *Journal of the American Medical Association* 234: 1477–1479, April 14, 1978.
(46) Johnson, A. S., ed., *Family Impact Seminar*. Washington, D.C., 1979.
(47) Forrest, J. D. "Abortion in the United States: 1976–1977." *Family Planning Perspectives* 10(5): 271–279, September–October 1978.
(48) Schonberg, S. K. and M. I. Cohen. "Health Needs of the Adolescent." *Pediatrician* 8 (Supplement 1): 131–140, 1979.

(49) Kovar, M. G. "Some Indicators of Health Related Behavior Among Adolescents in the United States." 94(2): 109–118, March–April 1979.
(50) Waldron, I. and J. Eyer. "Socioeconomic Causes of the Recent Rise in Death Rates for 15–24 Year Olds." *Social Science and Medicine* 9: 383–396, July 1975.
(51) Williams, D. A., M. Hager, S. Monroe, and D. Witherspoon. "Teenage Suicide." *Newsweek*, pp. 74–77, August 28, 1978.
(52) Crumley, F. E. "Adolescent Suicide Attempts." *Journal of the American Medical Association* 241(22): 2404–2407, June 1, 1979.
(53) Gil, D. G. "Confronting Societal Violence by Recreating Communal Institutions." *Child Abuse and Neglect* 3(1): 1–7, 1979.
(54) Reavley, W. and M. T. Gilbert. "The Behavioral Treatment Approach to Potential Child Abuse." In *Child Abuse: A Reader and Source Book*, C. M. Lee, ed. New York: Open University Press, 1978.
(55) Kempe, H. C. and R. E. Helfer. "Innovative Therapeutic Approaches." In *Child Abuse: A Reader and Source Book*. J. M. Lee, ed. New York: Open University Press, 1978.
(56) McQuarrie, H. G. "Home Delivery Controversy Editorial." *Journal of the American Medical Association* 243(17): 1747–1748, May 2, 1980.
(57) Adamson, G., D. Gare, and D. J. Gare. "Home or Hospital Births." *Journal of the American Medical Association* 24(3): 1732–1736, May 2, 1980.
(58) U.S. General Accounting Office. *Evaluating Benefits and Risks of Obstetric Practices—More Coordinated Federal and Private Efforts Needed.* Washington, D.C.: U.S. Government Printing Office, Publication No. (HRD) 79–85, 1979.
(59) Banta, H. D. and S. B. Thacker. "Policies Toward Medical Technology: The Case of Electronic Fetal Monitoring." *American Journal of Public Health* 69: 931–935, September 1979.
(60) Check, W. A. "Antenatal Diagnosis: What Is Standard?" *Journal of the American Medical Association* 241(16): 1666–1675, April 20, 1979. Check, W. A. "Electronic Fetal Monitoring: How Necessary?" *Journal of the American Medical Association* 241(17): 1772–1774, April 27, 1979.
(61) O'Donnell, J. L., D. M. Fergusson, L. J. Horwood, and F. T. Shannon. "Health Care in Early Infancy." *New Zealand Medical Journal* 88.622: 315–317, October 25, 1978.
(62) Davis, C. and M. Feshbach. *Rising Infant Mortality in the U.S.S.R. in the 1970's.* Washington, D.C.: U.S. Department of Commerce, Bureau of the Census, 1980.
(63) Hemminki, E. and B. Starfield. "Prevention of Low Birth Weight and Pre-Term Birth, Literature Review and Suggestions for Research Policy." *Millbank Memorial Fund Quarterly*, Health Society. 56: 339–361, Summer 1978.
(64) Lave, J. R., L. B. Lave, S. Shapiro, and M. E. Wegman. "Measuring the Effectiveness of Prevention." *Millbank Memorial Fund Quarterly, Health and Society* 55(2): 273–313, Spring 1977.
(65) Fielding, J. E. and A. Yankauer. "The Pregnant Smoker—The Pregnant Drinker." *American Journal of Public Health* 68(9): 835–838, September 1978.
(66) Scheffler, R. M. and L. Paringer. "A Review of the Economic Evidence on Prevention." *Medical Care* 18: 473–484, May 1980.
(67) Spitzer, W. O. and B. P. Brown. "Unanswered Questions about the Periodic Health Examination." *Annals of Internal Medicine* 83: 257–263, August 1975.
(68) Edwards, L. N. and M. Grossman. "Children's Health and the Family." NBER 256, 1978.
(69) Edwards, L. N. and M. Grossman. "Adolescent Health, Family Background, and Preventive Medical Care." NBER 398, October 1979.
(70) Edwards, L. N. and M. Grossman. "Income and Race Differences in Children's Health." NBER 308, 1979.
(71) Ghez, G. R. and M. Grossman. "Preventive Care, Care for Children, and National Health Insurance." NBER Working Paper 417, December 1979.
(72) Shakotko, R. A., L. N. Edwards, and M. Grossman. "An Exploration of the Dynamic Relationship Between Health and Cognitive Development in Adolescence." NBER 454, February 1980.
(73) Sundel, M. and C. C. Homan. "Prevention in Child Welfare: A Framework for Management and Practice." *Child Welfare* 58(8): 510–521, September–October, 1979.
(74) Lindstrom, C. J. "Health Care of Mexican-American Children." Ph.D. Thesis Michigan State University, Nurse Research Fellowship No. 704–NU–27–183–03, June 1974.
(75) Quesada, G. M. "Language and Communication Barriers for Health Delivery to a Minority Group." *Social Science and Medicine* 10: 323–327, June 1975.
(76) Douglas, C. W. and K. Cole. "Utilization of Dental Services in the United States." *Journal of Dental Education* 43(4): 223–238, April 1979.
(77) Garcia, J. A. and K. Z. Juarez. "Utilization of Dental Health Services by Chicanos and Anglos." *Journal of Health and Social Behavior* 19: 428–436, 1978.
(78) Earthrowl, B. and M. Stacey. "Social Class and Children in Hospital." *Social Science and Medicine.* 11: 85–88, January 1977.

(79) McKinlay, J. B. "The New Latecomers for Antenatal Care." *British Journal of Preventive and Social Medicine*, 24(1): 52–57, February 1970.
(80) McKinlay, J. B. and S. M. McKinlay. "Some Characteristics of Lower Working Class Utilizers and Underutilizers of Maternity Care Services." *Journal of Health and Social Behavior*, pp. 369–382, December 13, 1972.
(81) Fox, P. D. and T. W. Bice. "Socioeconomic Status and Use of Physician Services Revisited." *Medical Care* 14(8): 714–717, August 1976.
(82) Dutton, D. B. "Explaining the Low Use of Health Services By the Poor: Cost Attitudes and Delivery Systems." *American Sociological Review* 43: 348–368, June 1978.
(83) Butler, J. A. and R. K. Scotch. "Medicaid and Children: Some Recent Lessons and Reasonable Next Steps." *Public Policy* 26(1) 3–27, Winter 1978.
(84) Dutton, D. B. and R. S. Silber. "Children's Health Outcomes in Six Different Ambulatory Care Delivery Systems." *Medical Care* VII: 673–714, July, 1980.
(85) Elesh, D. M. and J. Lefcowitz. "The Effects of the New Jersey–Pennsylvania Negative Income Tax Experiment on Health and Health Care Utilization." *Journal of Health and Social Behavior* 18: 391–405, December 1977.
(86) Rabin, D. L. and E. Schach. "Medicaid, Morbidity and Physician Use." *Medical Care* 13: 68–78, January 1975.
(87) Skinner, E. A., P. S. German, S. Shapiro, G. A. Chase, A. G. Zarber. "Use of Ambulatory Health Services by the Near Poor." *American Journal of Public Health* 68: 1195–1201, December 1978.
(88) Boitchman, J. "Social Class Symptom Type and the Utilization of Children's Psychiatric Services." *The Canadian Psychiatric Association Journal* 23: 297–302, 1978.
(89) Slesinger, D. P., R. C. Tessler, and D. Mechanic. "The Effects of Social Characteristics on the Utilization of Preventive Medical Services in Contrasting Health Care Programs." *Medical Care* 14(5): 392–404, May 1976.
(90) Salkever, D. S. "Economic Class and Differential Access to Care: Comparisons Among Health Care Systems." *International Journal of Health Services* 5(3): 373–395, 1975.
(91) Luft, H. S., J. C. Hershey, and J. Morrall. "Factors Affecting the Use of Physician Services in a Rural Community." *American Journal of Public Health* 66: 865–871, 1976.
(92) Freeborn, D. K., C. R. Pope, M. H. McDavis, and J. P. Mullooly. "Health Status, Socioeconomic Status, and Utilization of Outpatient Services for Members of a Prepaid Group Practice." *Medical Care* 15(2): 115–128, February 1977.
(93) Lee, K-S., N. Pareth, L. M. Gartner, M. A. Pearlman, and L. Graas. "Neonatal Mortality: An Analysis of the Recent Improvement in the United States." *American Journal of Public Health* 70: 15–21, January 1980.
(94) Lairson, D. R. and J. M. Swint. "Estimates of Preventive Versus Non-Preventive Medical Care Demand in an HMO." *Journal of Health Services Research* 33–43.
(95) Gray, L. C. "Physical Examination Status of Children and Adolescents in Distinct Health Plans. " *Preventive Medicine*. 8(1): 65–75, January 1979.
(96) Perkoff, G. T., L. Kaha, and P. J. Haas. "The Effects of an Experimental Prepaid Group Practice on Medical Care Utilization and Cost." *Medical Care* 14(5): 432–449, May 1976.
(97) Saliterman, L. S., A. London, and M. Peterson. "Immunization Outreach Program in Health Maintenance Organization." *Pediatrics* 65: 338–339, February 1980.
(98) Salkever, D. "Accessibility and the Demand for Preventive Care." *Social Science and Medicine* 10: 469–475, 1976.
(99) Cowen, D. L., G. A. Cully, D. L. Hochshrasser, M. E. Brisoe, and G. W. Somes. "Impact of a Rural Preventive Care Outreach Program on Children's Health." *American Journal of Public Health* 68: 471–476, May 1978.
(100) Newport, J. and M. I. Roemer. "Comparative Perinatal Mortality Under Medical Care Foundations and Other Delivery Models." *Inquiry* 12(1): 10–17, March 1975.
(101) Gordis, L. "Effectiveness of Comprehensive Care Programs in Preventing Rheumatic Fever." *New England Journal of Medicine* 289(7): 331–335, August 16, 1973.
(102) Colombo, T. J., D. K. Freeborn, J. P. Mullooly, and V. R. Burnham. "The Effect of Outreach Workers' Educational Efforts on Disadvantaged Preschool Children's Use of Preventive Services." *American Journal of Public Health* 69(5): 465–468, May 1979.
(103) Hepner, R. "Outreach and Use of Preventive Services Letter." *American Journal of Public Health* 69(9): 954–958, September 1979.
(104) Mechanic, D. "Sex, Illness, Illness Behavior, and the Use of Health Services." *Journal of Human Stress* 2: 29–40, December 1976.
(105) Tessler, R. and D. Mechanic. "Consumer Satisfaction with Prepaid Group Practice: A Comparative Study." *Journal of Health and Social Behavior* 16(1): 95–113, March 1975.
(106) Breslau, N. and M. R. Haug. "Service Delivery Structure and Continuity of Care: A Case Study of

Pediatric Practice in Process of Reorganization." *Journal of Health and Social Behavior* 17(4): 339–352, December 1976.

(*107*) Adams, M. S. "Centralized Vs. Decentralized Child Mental Health Services." *Journal of the National Medical Association* 69: 625–626, 1977.

(*108*) Lewis, C. E., M. A. Lewis, A. Lorimer, and B. B. Palmer. "Child-Initiated Care: The Use of School Nursing Services by Children in an Adult-Free System." *Pediatrics* 60: 499–507, 1977.

(*109*) Alpert, J. J., L. S. Robertson, J. Kosa, M. C. Heagarty, and R. Haggerty. "Delivery of Health Care for Children: Report on an Experiment." *Pediatrics* 57(6): 917–930, June 1976.

(*110*) Bennett, A. J. E. "New England Regional Newborn Screening Program." *New England Journal of Medicine* 297(21), November 24, 1977.

(*111*) Bloom, B. L. Prevention of Mental Disorders: "Recent Advances in Theory Practice." *Community of Mental Health Journal* 15: 179–191, Fall 1979.

(*112*) LeBlang, T. R. "The Family Stress Consultation Team: An Illinois Approach to Protective Services." *Child Welfare* 597–604, November 1979.

(*113*) Bradshaw, J., C. Glendinning, and S. Hatch. "Voluntary Organizations for Handicapped Children and Their Families: The Meaning of Membership." *Child Health Care and Development* 3: 247–268, 1977.

(*114*) Silver, G. A. *Child Health, America's Future.* Germantown, Md.: Aspen Publications, 1978.

(*115*) Burg, R. P. and J. B. Richmond. "The Public and Private Sector: A Developing Partnership in Human Services." *American Journal of Orthopsychiatry* 49(2): 218–229, April 1979.

(*116*) Wynn, M. and A. Wynn. "Some Developments in Child Care in Europe." *Royal Society of Health* 99: 259–264, December 1979.

(*117*) Kewley, G. D. "Trends in Pediatric Care." *Australian Pediatric Journal* 16: 4–6, 1980.

(*118*) Kennell, J. H. "Are We in the Midst of a Revolution?" *American Journal of Diseases of Children* 134: 303–310, March 1980.

(*119*) Wallace, H. M. "Selected Aspects of Perinatal Casualties Looking Ahead Nationally." *Clinical Pediatrics* 18(4): 213–223, April 1979.

(*120*) John Butler and Theodore Marmor, "Developing a Better Health Care System for Children," vol. iii Harvard Child Health Project, 1977

(*121*) Hopkins, C. E., M. I. Rocimer, D. Procter, F. Gartside, J. Lubitz, G. A. Gardner, and M. Moser. "Cost Sharing and Prior Authorization Effects in Medicaid Services in California—Part 1: The Beneficiaries' Reactions." *Medical Care* 13(7): 582–594, July 1975.

(*122*) Ma, P. and F. Piazza. "Cost of Treating Birth Defects in State Crippled Children's Services." *Public Health Report* 420–424, September–October 1979.

(*123*) Wallace, H. M., H. Goldstein, and A. C. Oglesby. "General Revenue-Sharing Funds for Health Care of Mothers and Children." *American Journal of Diseases o Children* 131: 409–412, April 1977.

(*124*) Wallace, H. M. "Expenditures for Health Care of Children and Youth in the United States." *Clinical Pediatrics* pp. 40–44, 1978.

(*125*) "Joint Statement: Recommendations on Educational Preparation and Definition of the Expanded Role and Functions of the School Nurse Practitioner." *Journal of School Health* 43(9), 1973.

(*126*) Silver, H. K. "School Nurse Practitioner." *Pediatrics* 65: 641–643, March 1980.

(*127*) Shabecoff, P. "The School Nurse: Beyond the Band-Aid." *New York Times*, April 14, 1979.

(*128*) Nelson, E., A. R. Jacobs, P. E. Breer, and K. G. Johnson. "Impact of Physicians' Assistants on Patient Visits in Ambulatory Care Practices." *Annals of Internal Medicine* 82: 608–612, 1975.

(*129*) Linn, L. S. "Patient Acceptance of the Family Nurse Practitioner." *Medical Care* 141: 357–364, April 1976.

(*130*) Coleman, J. V., M. L. Lebowitz, and F. P. Anderson. "Social Work in a Pediatric Primary Health Care Team in a Group Practice Program." *Social Work in Health Care* 1(4): 489–498, Summer 1976.

(*131*) Frew, M. J. and E. R. Alden. "Role of the Pediatric Nurse Clinician in Early Identification of Potential Child Abuse." *Military Medicine* 143(5): 325–327, May 1978.

(*132*) Scharer, K. "Nursing Therapy with Abusive and Neglectful Families." *Journal of Psychiatric Nursing* 12–21, September 1979.

(*133*) Spitzer, W. O. "Pediatric Nurse Practitioners." *New England Journal of Medicine* 298(3): 163–164, January 19, 1978.

(*134*) William, M. K., E. Weinberg, R. D. Burnett, and R. W. Olmsted. "The Pediatric Nurse Associate: A Model of Collaboration Between Medicine and Nursing." *New England Journal of Medicine* 298(13): 740–741, March 30, 1978.

(*135*) Miller, K. A. "Primary Care Physician Should Know How to Help Families of Abused, Neglected Children." *Michigan Medicine*, 653–656, November 1979.

(136) Meyer, R. J. "Accepting the Challenge of Child Abuse and Neglect: A Golden Opportunity for School Health." *Journal of School Health* 480, October 1979.

(137) Henk, M. and J. Froom. "Outreach by Primary-Care Physician." *Journal of the American Medical Association* 233: 256–259, 1978.

(138) Wilson, F. P., L. O. Wilson, A. D. Butler, and L. Caneles. "Algorithm-Directed Triage of Pediatric Patients: A Prospective Study." *Journal of the American Medical Association* 243: 1528–1531, April 18, 1980.

(139) The Robert Wood Johnson Foundation, Special Report No. 2. *Regionalized Perinatal Services*, 1978.

(140) Nader, P. R., S. Gilman, and D. E. Bee. "Factors Influencing Access to Primary Health Care by a School Health Service." *Pediatrics* 65: 585–591, March 1980.

(141) Gilman, S. and P. R. Nader. "Measuring the Effectiveness of a School Health Program, Methods and Preliminary Analysis." *Journal of Scientific Health*. 49(1): 10–14, January 1979.

(142) Reader, G. "School Health Education." *Forum on Medicine* 3: 354–357, May 1980.

(143) Bass, J. L., L. Bergen, M. Tanenbaum, K. A. Mehta. "Head Start, Day Care, the Public School, Extensions of Pediatric Residency Training." *Clinical Pediatrics*, 17(8): 639–642.

(144) Dunning, J. M. and N. Dunning. "An International Look at School-Based Children's Dental Services." *American Journal of Public Health* 68: 664–668, July 1978.

(145) Steiner, G. *The Children's Cause*. Washington, D.C.: The Brookings Institution, 1976.

(146) Miller, A. Presentation to the Select Panel for the Promotion of Child Health, 1980.

(147) Silver, G. A. "Politics and Social Policy: Failures in Child Health Services." From Yale Health Policy Project, from a grant from the National Center for Health Services Research. Grant #5-ROI-HS-00900-01/4.

(148) Stewart, J. C. and L. L. Crafton. *Delivery of Health Care Services to the Poor: Findings from a Review of the Current Periodical Literature*. Austin, Tex.: Center for Social Work Research, Graduate School of Social Work, 1975.

(149) Schaefer, E. B. "Professional Paradigms in Child and Family Health Programs." *American Journal of Public Health* 69(9): 849–850, 1979.

(150) Palfrey, J. S., R. C. Mervis, and J. A. Butler. "New Directions in the Evaluation and Education of Handicapped Children." *New England Journal of Medicine* 298(15): 819–824, April 13, 1978.

(151) Hunt V. *Occupational Health Problems of Pregnant Women*, Washington, D.C., Department of Health, Education, and Welfare, 1975.

(152) Stellman, J. M. *Women's Work, Women's Health*. New York: Pantheon, 1977.

(153) Showstack, J. A., Blumberg, B. D., Schwartz, J., and Schroeder, S. A. "Fee-For-Service Physician Payment: Analysis of Current Methods and Their Development." *Inquiry* 16(3): 238–246, Fall 1979.

(154) Blumberg, Leon. *Annals of the American Academy of Political and Social Science*. 447: 135–136, January 1980.

BIBLIOGRAPHY

Cowen, E. L., R. P. Lorion, and A. B. Wilson. "Knowing, Liking, and Judged Problem Severity in Relation to Referral and the Outcome Measures in a School-Based Intervention Program." *Journal of Consulting and Clinical Psychology* 44(3): 317–329, June 1976.

Davis, K. and R. Reynolds. "The Impact of Medicare and Medicaid on Access to Medical Care." In *The Role of Health Insurance and the Health Services Sector*. R. N. Rosett, ed. New York: National Bureau for Economic Research, 391–435, 1976.

Dutton, D. B. "Patterns of Ambulatory Health Care in Five Different Delivery Systems." *Medical Care* 221–243, March 1979.

"Guidelines on Educational Preparation and Competencies of the School Nurse Practitioner." *Journal of School Health* 48(5): 265–268, May 1978.

Kempe, C. H. "Child Abuse—The Pediatrician's Role in Child Advocacy and Preventive Pediatrics." *American Journal of the Diseases of Children* 132(3): 255–260, March 1978.

Kempe, C. H. "Recent Developments in the Field of Child Abuse." *Child Abuse and Neglect* 3(1): ix–xv, 1979.

Lewis, D., G. C. Cypress, H. Joseph, R. C. Harris, S. Sherry, N. Kaback, M. Michael, H. Seidel, and B. Garrett. "Health Needs of the Child in Foster Family Care." *Pediatrics* 59(3): 465–466, 1977.

McKinlay, J. B. "Who is Really Ignorant—Physician or Patient?" *Journal of Health and Social Behavior* 16: 3–11, 1975.

Miller, M. K. and C. S. Hinkes. "Health Status, Health Resources, and Consolidated Structural Parameters: Implications for Public Health Care Policy." *Journal of Health and Social Behavior* 19: 263–279, September 1978.

Novick, L. F., A. Mustalish, and G. Eidsvold. "Converting Child Health Stations to Pediatric Treatment Centers." *Medical Care* 13(9): 744–775, September 1975.

Rabin, D. L., P. J. Bush, and N. A. Fuller. "Drug Prescription Rates Before and After Enrollment of a Medicaid Population in an HMO." *Public Health Reports* 93, January–February 1978.

Shakotko, R. A. "Dynamic Aspects of Children's Health, Intellectual Development, and Family Economic Status." NBER 451, February 1980.

Stockwell, E. G., J. W. Wicks, and D. J. Adamchak. "Research Needed on Socioeconomic Differentials in U.S. Mortality." *Public Health Reports* 93(6): 666–672, November–December 1978.

"Infant Intervention: A New Goal." *Psychiatric News*, 5–10, November 2, 1979.

NATIONAL INFORMATION NEEDS IN MATERNAL AND CHILD HEALTH

by
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INTRODUCTION

How Healthy Are Children In The United States?

To answer the question "What would we like to know about child health in the United States?" it is necessary to know first how healthy American children are and how their health status has changed over time. This seems simple to answer, but the progress that has been made in improving child health has made this more difficult to determine. When many children died in infancy or childhood and even more contracted serious infectious diseases or were malnourished, health could be simply defined as the absence of disease or illness.

Today, most of the children who are born in the United States survive infancy and childhood and relatively few develop any serious disease. As these changes have occurred, definitions and concerns about health have broadened to include more than mere survival and extend to questions regarding normal growth and development, school performance, mental health, and the prospects for a child's becoming a positive and productive member of society.

In addition to information concerning the health status of American children as a whole, a growing interest has developed concerning social, economic, and geographic differences in health status. Health differences between children from affluent and educated families as opposed to those from families with little education or income are of interest as well as how the health of black and Hispanic children compares with that of nonminority children. Furthermore, how child health measures vary within and among cities and States is also of interest.

Several reasons have led to the interest in group and geographical differences. The first reason is a concern with social equity. The United

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States as a society has made a commitment to the effect that the color of a child's skin or the income level of the child's family should not in themselves be barriers to a childhood free from physical pain and disability. Child health can be employed as an indicator to learn about the progress—or lack of progress—in achieving these goals. A second reason for the interest in group differences is that they may help to clarify why some children remain healthy and others develop diseases or handicaps. The question of causality in disease is usually more complex than the simple description of how one group differs from the other or how health statistics change from one year to the next.

The interest in geographical differences in child health stems from the fact that much of the political decisionmaking and administration of health care resides at the State and local levels. Governors, mayors, State legislators, county executives, local health officials, and citizens want to know how healthy children are in their jurisdictions, especially in comparison to other, similar jurisdictions. Environmental issues—such as air and water pollution, nuclear and chemical contamination and the like—have also spurred the interest in local health statistics.

What Kind of Care Do They Receive?

The second major type of information about child health concerns access to and use of health services. How often do children require medical care and for what reasons? Who gets care and who does not? How do the qualitative characteristics of care vary? And, how much do services cost and who pays for them? In addition to national health care statistics, a great interest has arisen in socioeconomic and ethnic differences in relation to the access to care and in how medical care varies across geographic areas and political jurisdictions.

Do Health Programs Make Any Difference?

For policy decisions and program evaluation the most useful information is that which combines child health care data with child health status data. Supporters of Federal or State child health programs attempt to measure program impact primarily in terms of reduction in human suffering. Economists and cost accountants are more interested in measures of benefits relative to cost, and many critics, seeking to demonstrate that the programs are inefficient, focus their attention on management and administrative data. Information about the effectiveness and efficiency of child health programs is more difficult and expensive to obtain as well as more open to dispute than is information on simple differences over time or by geographic areas. At the same time the former type of information is in higher demand.

THE ABSENCE OF ACCURATE INFORMATION FOR MANY HEALTH ISSUES

Many constraints, limits, and problems are associated with collecting valid health information. Data are often requested regarding new and controversial issues. For new areas, however, accurate data can often be difficult to acquire because a basic understanding of health principles is lacking.

Determining the appropriate methodology and analysis for gathering data can be challenging. If a well-designed methodology is not thoroughly adhered to, information will be inaccurate and can lead to false conclusions. Numerous examples of past data collections can be cited that show poor design and administration, which ultimately yielded results with limited usefulness and accuracy.

Controlling for Social and Environmental Variables

Although medical knowledge and technology have increased enormously in the last 30 or so years, development in the biological sciences has been insufficient to answer many basic questions such as those relating to the etiology of disease in individuals and populations. This makes it more difficult to specify the kinds of measures and data most needed.

Data for some studies, such as the effects of nutrition and preventive practices, are best collected through prospective experimental studies that attempt to unravel the influence of the environment, genetic composition, and individual behavior on health status. The interactional nature of health makes isolating the variables associated with a health problem extremely difficult. Only carefully designed research that controls for impinging background variables is able to produce valid data.

Employing an experimental design is not always feasible, however, because of ethical or practical problems. Such studies are also time consuming and expensive. Where data cannot be experimentally collected, it is sometimes possible to substitute other methods which provide some, though weaker, evidence for causal relationships. For example, statistical techniques allow inferences to be made about possible cause and effect from retrospective and concurrent studies.

Lack of an Adequate Classification System

Diagnostic tests and uniform classification systems have not been developed for many new health issues, which further deters accurate data collection. This is especially so for "new morbidity" (*1*) conditions in child health, such as hyperactivity, dyslexia, or allergies. A lack of standardized definitions or systems of classification creates difficulties for the collection of reliable data on the prevalence of new morbidity conditions. Even when

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disability. Child health can be employed as indicators to learn about the prevalence reflect an actual increase in incidence and not an increase in the awareness of the condition or problem. For example, the recent increase in the number of reported cases of child abuse may reflect an increased awareness of the phenomenon rather than an increase in actual child abuse incidents.

Fragmentation of Data

Data from government health care programs are often incomplete because of the fragmentation of health care services and the fact that the same program may vary across different States or regions in ways which preclude State-by-State or region-by-region comparisons. One way to overcome fragmentation is to base data on a standard unit of analysis that would remain constant in varying circumstances. For example, using the individual child as a unit for analysis would make comparisons of programs easier.

Small scale studies using a mixture of concepts, methods, and samples will not provide the basis for describing child health or evaluating program effectiveness. If real progress is to be made in tackling complex, multifaceted questions, large-scale collaborative research is needed that makes use of standard terms and definitions, comparable methods, and suitable techniques of analysis.

METHODS USED TO PROVIDE HEALTH DATA FOR CHILDREN

Several widely used methods exist for collecting data on the prevalence of health conditions, the need for and use of services, the effects of treatments, and changes in health status over time. The methods include self-reporting or parents' evaluation for children, doctors' reports, administrative records, laboratory tests, and reports of observed behavior. All these methods produce data that have some value, although each method has its limitations. Most of the methods depend on the reporting of conditions classified into categories and given specific labels. The better the classification system and the wider its acceptance, the better the quality of the information.

Laboratory testing is the most highly developed tool for measuring some aspects of health status. Unfortunately, for many important conditions, adequate tests are not available. Laboratory tests are also limited even in the kinds of information they provide. For example, they do not provide knowledge about the level of discomfort a condition causes or the degree to which the patient experienced disruptions in his or her regular activities.

In incidents where adequate diagnostic tests have not been developed for health conditions or problems, clinical judgment is the best method for determining the presence of the conditions. Trained observers can

more accurately assess health conditions than can children or parents reporting for themselves. Such observations, repeated over time, can also be used to determine long-term trends in health status, as long as no change occurs in the clinical criteria employed.

Observation techniques employed over time can be used to develop knowledge about health status changes and how health conditions affect children at different developmental levels. This is necessary because general health and environmental conditions can change rapidly during childhood and adolescence. Starfield (*2*) has shown in an analysis of data collected over a 10-year period that many children with high use of services recovered from serious conditions and no longer needed services, whereas other high users remained ill and continued to be high users of medical care. Those children recovering from conditions passed through various stages of health care needs. For children remaining ill, however, their own maturation processes meant that their health needs were also changing over time.

The information reported by doctors can be useful for determining the prevalence of some conditions but is unreliable for others. Studies of the diagnosis of children's psychiatric disorders, for example, show that among different psychiatrists, low levels of agreement occur even when they applied the same classification system (*3*).

The limitations of patient record systems also introduce problems of validity in measuring health conditions. In a recent study of Medicare records, only 57 percent of the claim forms contained the correct principal diagnosis (*4*). Such low validity suggests that this method of data collection would lead to inaccurate knowledge about the frequency of various health problems in the population.

Another source of discrepancies in doctor reports is that doctors rely, in part, on the ability of parents to accurately describe symptoms. Because patients vary in ability to articulate their health problems, a doctor's ability to elicit this information may also be a factor affecting diagnosis.

Evidence suggests that physician reports of some conditions increase as the income and education levels of patients increase. In a reanalysis of data from the Health Examination Survey of children 6–11 years of age collected in 1963–65, Grossman *et al.* (*5*) found a positive association between family income and the number of physician recorded health conditions for certain health problems such as allergies. However, these data were derived from the health history segment, which relied on the parents' reports to the doctor and not the actual physical examination itself. Possibly, parents with higher incomes were either more aware of or better able to report these health conditions. In actuality, the upper-income children, based on physical examination, were not less healthy as a whole, and, in fact, low-income children displayed significantly more abnormal conditions when examined (*6*).

If doctor reports are subject to biases, then self-reported data are even more affected by individual perceptions and awareness. Individuals more knowledgeable about health problems, symptoms, and early stages of health conditions are likely to report a higher incidence of conditions in themselves or their children. Reports by individuals are also affected by

the amount of information received from the doctor. Those who have not seen a doctor will in most cases be less able to put a medical label on symptoms.

The degree to which specific terminology and standard definitions are universally accepted affects the reliability of self-reported and doctor reported data. Common terminology is partly developed through communication between the individual preforming the diagnosis and the person being diagnosed. A recent study conducted by the Foundation for Child Development (*7*) demonstrates that in the area of child health a wide variety of labels are used. Data reported by teachers and parents on limiting conditions in children showed only a 22-percent agreement. Even for mental retardation, a child health concern for many years, agreement between parents and teachers as to which children were mentally retarded was so low that teachers reported over four times as many such children as did parents.

Parent education level and ethnic background appear to be factors that affect the degree of agreement. Parents with less than a high school diploma agreed with teachers 13 percent of the time whereas parents with some college education agreed with the teacher 27 percent of the time. For black children, parents and teachers agreed only 9 percent of the time. The report states that, "As far as black children with limiting conditions were concerned, the parent and teacher responses to the same questions concerning the same children were essentially unrelated" (*8*).

These results demonstrate the problems associated with self-reported data when standardized definitions neither exist nor are universally accepted. Under these circumstances, the use of self-reported or parent reported data can lead to misleading conclusions. An analysis of data gathered in the 1976 Survey on Income and Education showed that poor black parents reported fewer chronic conditions for their children than poor white parents (*9*). From these data it was concluded that poor blacks were healthier than their white counterparts and the report stated, "The results of this study could have major program implications for Medicaid, Aid to Families with Dependent Children and local health programs" (*10*).

A reexamination of these data indicates that other factors may influence the ability of parents to accurately report the health conditions of their children (*11*). For instance, large differences existed in the number of chronic conditions reported in different regions of the country. These regional variations, in turn, were strongly related to the number of doctors practicing in each region. Where the ratio of doctors to population was low, parents reported fewer illnesses for their children. Also, as the ratio of doctors to people declined, the disparity in the rates of reported health conditions between blacks and whites increased. The large differences in chronic conditions for children by various ethnic and regional groups appeared too dramatic to be naturally occurring variations in health, especially considering the fact that each group of children was living in conditions of poverty.

The observed relationship between the number of doctors and the number of reported conditions may reflect either the access to or the utilization of care. Therefore, the use of self-reported data for determining

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the prevalence of chronic conditions may be misleading and biased. If, as the data suggest, those receiving the least amount of care are unaware of specific names or labels for health problems and therefore are unable to report them accurately, then the conclusion that those reporting fewer conditions are healthier is probably incorrect. This illustrates the errors that may result when conclusions are drawn from collected data that were based on an unreliable methodology.

The method of self-reporting, however, is not an inaccurate means of collecting some kinds of health data. Knowledge about health attitudes and behaviors, utilization of services, feelings of discomfort, and perceptions of health status are all important and best reported by people themselves. Though the reporting of a condition like pain is subjective, the level of perceived discomfort is a fact of real importance in defining health status and explaining health related behavior (*12*).

In summary, a variety of methods may be used to provide health data on children. Each method is best suited to certain research questions or topics. A combination of methods is required to provide a comprehensive picture of children's health and medical care.

HEALTH PROGRAM EVALUATION DATA

Government policymakers and planners often seek information on the effectiveness of health programs. The usual method requires program administrators to report certain data to the relevant government office, which then performs the analysis. The need for information about many aspects of health care programs has resulted in an increase in the amount of reporting required. Often legislators and policymakers have little idea of the feasibility of accurately obtaining the information that they request. As a consequence, a large amount of useless information is collected and policymakers are frustrated because these data do not provide the basis for answers to their questions. John Kearn, of the Senate Finance Committee staff, voiced a common complaint among congressional staff members: "With the vast amounts of information collected, we still do not know anything about the management of programs—such as how many children we are serving and how many we are serving twice."[2]

The principal reasons why vast amounts of data fail to provide useful answers are the large degree of autonomy granted to States and program sites and the large overlap in services provided by various programs. Such variation and overlap make it difficult to find a common denominator that can be used for comparisons between or summations across program sites. For this reason, data concerning any given national program are often limited to the total dollars spent without details on what services were provided or how many children were served.

Data can sometimes be collected on what services a State, region, or county provided regardless of which program funded the service. Under these circumstances, similar services can be added to produce a broader

[2]Kearn, J. Personal communication.

picture of health services delivered to children. Such data can provide a basis for State comparisons and answer some additional questions concerning what services children are receiving for the total amount of money being spent.

Even data on services, however, are limited in their usefulness. For example, such data do not distinguish between one child using health sources five times and five children using them once. Because this kind of information is important for determining program effectiveness in terms of the population served and for comparing programs across the country, data should be collected for the individual child. Then questions could be answered about the number of children being served, the cost of individual treatment, and the number of visits made by each child enrolled in a program.

Children receive care from programs funded by State, Federal, and private sources, with each source maintaining separate records. Therefore, trying to obtain a comprehensive picture of a child's health care is practically impossible with presently available data. If programs themselves overlap, provide fragmented services, and have varying eligibility requirements, reported data will reflect this. Only by identifying the individual child and following the child through the health care system is it possible to know all the various programs and services that he or she is utilizing. For this reason, health records for individual children in government health care programs should be coded by health ID numbers. Such a system would allow for linking of records across programs, constructing longitudinal data on individual cases, and determining the frequency of appropriate followup care. However, because such a system would focus primarily on low-income families, opposition to the proposal has arisen for ethical and legal reasons. As long as extensive program fragmentation continues and no acceptable system for identifying individuals is present, child health data collected through program reporting will not provide a comprehensive picture of child health services.

The limited usefulness of program data has caused frustration and led to misguided demands for the collection of more information rather than less. Burgeoning reporting requirements for programs not only fail to provide useful data, but indirectly threaten program success. The estimated yearly cost of reporting Medicaid service and eligibility record data is $300 million (*13*). In addition, some doctors refuse to treat Medicaid and other service program patients because of the time and money involved in processing required forms for such patients. Dr. John P. Connelly of the American Academy of Pediatrics reports that because of these costs, some doctors have abandoned their inner city practices after many years of work.[3]

Because these reporting systems have been legislated by the Congress, modifications in data collecting and reporting will not be accomplished quickly. However, some legislators are aware of the problem. David Schaffer, health specialist for Senator Ribicoff, has suggested that reporting systems be periodically reviewed and evaluated so that the

[3]Connelly, J.P. Personal communication.

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collection of data judged invalid or not useful could be eliminated.[4] This would streamline legislative requirements, reduce the burden on respondents, and allow flexibility for developing new and more useful forms of data collection. At present, legislators are constrained in their attempts to request the collection of better information because respondents are already overburdened with paperwork.

ADVANTAGES AND DISADVANTAGES OF CURRENT CHILD AND MATERNAL HEALTH INFORMATION SYSTEMS

A number of Federal data systems have been developed for regular collection and reporting on health statistics (*14*). It is important to be aware of the strengths and limitations of such health information systems for providing information on the status of child health.

Birth and Death Certificates

The vital statistics system, which compiles and analyzes information from birth and death certificates, is a main source of information concerning child health. Certificates are issued locally and the information is forwarded to State statistical agencies and from them to the Vital Statistics Office at the National Center for Health Statistics. The usefulness of the system depends upon the availability of comparable information from the various States. Whereas substantial variations still exist, some important information is now available in standardized form from all States.

Examples of child health indicators that are derived from birth certificates include:

- The number and proportion of low-birth-weight infants in the population
- The number and percentage of children born to teenage mothers, and
- The proportion of babies whose mothers receive no prenatal care until late in the pregnancy

Indicators based on the vital statistics system have important advantages. First, the data come from all localities and areas in the United States. They allow comparisons to be made about health conditions at the local, State, and national levels. Also, these data have been compiled for many decades and are the best source of information on long-term trends in child health. However, vital statistics also have a number of limitations. Obviously, they depend upon the extent, completeness, and accuracy of the information that is entered on the certificates. Analysis according to family income is not possible, for example, because no income information is recorded on the certificates. Ethnic breakdowns are difficult

[4] Schaffer, P. Personal communication.

because some ethnic categories have changed over the years. Before 1979, Hispanic individuals were hard to identify from birth or death certificate information. Since 1979, data regarding Hispanic origin is available in the 19 States that have substantial Hispanic populations.

Moreover, birth and death certificates reflect only the births and deaths of children in a given time period. Is it safe to use such data to make generalizations about the condition of most children in a given place at a given time? In the past, at least, the infant mortality rate has served as a useful indicator of general public health conditions in an area. As the infant mortality picture has improved, however, the statistic has become less useful. Infant mortality rates have been well publicized and regional and international comparisons are used to indicate living conditions. With this in mind, a danger exists that over reliance on this one indicator can lead to policies that may improve the survival of infants born at risk but do little to improve their quality of life or the health of other children.

Nonetheless, the vital statistics system is the backbone of the child health information system and continues to provide much useful information about changes in the health status of children.

Epidemiological Studies

Another traditional source of information on child health is the reporting of selected childhood diseases to city or State health authorities or to the National Center for Disease Control in Atlanta. This information is used to either look for the cause of, chart the course of, or attempt to control "epidemic" disease. Over the years, the dramatic declines in the rates of a number of childhood diseases such as diptheria, typhoid fever, tuberculosis, and polio have been well documented by these data. A fundamental problem with the system as a source of childhood indicators, however, is the great variation in completeness of reporting, because reporting to the National Center for Disease Control is voluntary. For example, of all cases of measles that occur in the United States, only an estimated 10–15 percent are reported to the center (*15*).

Household Interview Surveys

Another method for collecting information on child health is the use of personal interviews based on probability samples of the population. Whereas sample surveys have been done at the State and city levels, the most frequent type of survey is nationwide. The National Health Interview Survey is a continuing nationwide sample survey that collects data yearly concerning approximately 116,000 persons in 40,000 households. Approximately 35,000 of these persons are children under 18 years of age.

This survey is especially useful as it includes descriptive demographic information such as sex, age, years of education, family income, ethnic group, etc. Data are gathered about illnesses, injuries, chronic conditions

and impairments, use of health services, and other health topics. These data permit detailed tabulations of health status and analyses of the relationships between health and social and economic factors.

Despite the use of large samples, the Health Interview Survey does not produce statistics at the State or city level. Some States have done interview surveys of their own, and others are moving in this direction; this is a relatively recent development and thus far has been limited to a handful of States (*16*).

The accuracy of data from such surveys is dependent, of course, upon the accuracy of respondent reports. The National Center for Health Statistics has done extensive studies to improve the accuracy and reliability of such reporting. For example, the center found that respondents remember and report such events as doctor visits or days lost from work because of illness more accurately if the recall period is limited to 2 weeks prior to the interview. The accuracy of parental reports of child illness appears to be related to such variables as the parent's education level. Differences in reporting have also been found between mothers and fathers and between black and white respondents.

Other limitations with the Health Interview Survey pertain to the measures and questionnaire content. The survey uses "limitation of activity" as a measurement of disability. This measure is less applicable to younger children because they neither work nor go to school, and no routine activity is present to be limited. Whereas the Health Interview Survey has collected information about disability, it has devoted few questions to the measurement of another fundamental aspect of health, namely discomfort. The household survey would seem the logical place to gather information about health problems that cause pain, irritation, worry, or other distress, but the National Center for Health Statistics has shied away from these topics, probably because of their subjective nature.

Health Examination Surveys

The Health Examination Surveys combine interviews with physical examinations that are conducted at mobile examination centers. Because of the need for these mobile facilities and specially trained staff, the Health Examination Surveys are costly and time consuming. Yet they provide information that is not available through any other method.

Two major examination surveys of children and youth were conducted during the 1960's. In 1971, the Health Examination Survey was renamed the Health and Nutrition Examination Survey (HANES), reflecting a new emphasis on collecting diet information that includes biochemical assessments of nutrition. Although the Federal reports from such examinations have been released slowly, they have provided an extremely rich source of information concerning the health of children and youths. Furthermore, raw data from the examination surveys of the 1960's have undergone secondary analyses focused on a variety of specific issues. The examination mechanism allows for objective and reliable measurement of height, weight, blood pressure, skin fold thickness, number of decayed or

missing teeth, and other health indicators. It also allows for the detection of physiological abnormalities and disease conditions of which the child and family may be unaware.

Whereas the standardized examination is more reliable than the typical physical checkup in a private physician's office, its reliability is far from perfect. During the Health Examination Survey of youths done in 1966–70, about 5 percent of the older children were given duplicate physical examinations. The National Center for Health Statistics reported the following:

> Comparison of the diagnostic impressions from these two examinations by the same or different examiners showed a high level of agreement for such assessments—69 percent considered essentially normal on both examinations, 15 percent abnormal (significantly) on both, 7 percent abnormal only on the original examination, and 9 percent only on the reexamination (*17*).

This implies, however, that of those children who were found to be abnormal on *either* examination, only 50 percent were found to be abnormal on *both* examinations. Thus, the physical examination is not perfectly reliable for assessments of child (or adult) health even when such examinations are tightly controlled and standardized.

Sample Surveys of Health Care Providers

The National Ambulatory Medical Care Survey (NAMCS) is a sample of office-based patient care physicians who voluntarily fill out a short form describing each patient visit occurring during a randomly selected week of the year. It does not provide a comprehensive picture of child health care because it excludes hospital-based physicians and clinics, but it has provided much useful information about general patient care in this country. For example, the 1975 survey showed that nearly 41 percent of the doctor visits of children in the first 2 years of life were for well-child examinations. At 2–5 years of age the number of office visits per child per year was approximately one-half the rate for children under 2 and well-child examinations constituted only about 17 percent of those visits (*18*). The surveys also include data on the presenting symptoms, the physician's diagnosis, and the nature of the treatment received.

The NAMCS has several limitations. First, the unit of measurement is the patient visit rather than the patient and thus many of the same problems occur as with other reports that use visits rather than individuals as the unit of measurement. Second, all the information collected is from the provider perspective. No information is recorded from the client perspective concerning how many other physicians have been seen for the same problem, how long the patient had to wait for the service, how satisfied he or she was with the encounter, or what it cost nor is any followup made that would provide information on the outcomes. Finally, the NAMCS provides no information on children and families with health

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problems who do not seek care for those problems. The only way to get information on this population is through household survey methods.

In addition, several surveys of hospitals and other institutions offer inpatient care including the Hospital Discharge Survey, which is a continuing nationwide survey of short-stay hospitals in the United States. The National Institute of Mental Health conducts several surveys of mental health facilities, including State, county and private mental hospitals, outpatient psychiatric services, and general hospital inpatient psychiatric units.

Patient Care Records

Another potential source of information about child health and health services is the patient care records of various clinics and other service providers. These records may be kept for internal administrative purposes or for reimbursement or for both as well as for accountability purposes as required by State or Federal regulations. They include information about the number of children seen, the type of service provided to each child, and the type of condition or health problem found in screening examinations along with some descriptive information about the child. Summaries of these records are sent to the relevant State agencies which in turn report them to the Federal Government.

These recordkeeping systems have proven to be of little value. First of all, the summary records as a rule differentiate between visits rather than children. Although standard Federal reporting forms have been developed, some question have arisen as to whether the information on these forms is really comparable from State to State because of varying characteristics of the programs and the recordkeeping systems in different clinics. Also, questions as to whether diagnostic labels and treatment procedures mean the same thing in each clinic have been noted.

Meaningful information has been derived from analysis of patient records within large individual clinics or prepaid health plans. However, the ability to generalize these studies is limited because the populations served by these clinics are not representative of the entire child population in any given area.

In summary, whereas these sources of information convey a great deal about the condition of child health in the Untied States and the characteristics of health care received by children, the overall picture they provide is by no means complete nor is it as useful as it might be for research, policy planning, or program evaluation. The major shortcoming of these data sources for developing a complete picture of child health is that much of the information is not child based. To illustrate, both the HIS and the NAMCS provide estimates of the average number of doctor visits made by children in a given year rather than the distribution of visits among individual children. Yet for program planning purposes, the distribution of health care use and the characteristics of high and low users are as important as the average rate of use.

CURRENT NEEDS

The Need for More Basic Knowledge

To determine what health programs are needed, which treatments are successful, and what care is appropriate for children, a need exists for more basic knowledge. Examples of areas needing more research are:

- The impact of prenatal and postnatal conditions on infancy and development
- The association between organic problems and poor learning or achievement, and
- The health risks associated with particular populations and environments.

Another challenge posed to the data collection and analysis process is to determine the relative impact of various diseases and conditions on different aspects of child health status. These aspects include mortality, morbidity, discomfort, disability, and use of services. The problem is that the impact of a specific type of disease is not uniform across all these aspects. For example, allergies cause few deaths in childhood but take a heavy toll in discomfort and need for medical services. Furthermore, the distribution of impact varies from disease to disease. Therefore, calculating the total social and personal cost of any given disease is difficult. Such calculations would be useful for planning the distribution of resources for research and medical care.

The current trend away from the traditional clinical and disease oriented medical model to a holistic and preventive approach to medical care requires data that will help guide these developments. Data are needed to persuade insurance companies, government, and labor officials that disease prevention services, such as health counseling and education, are cost effective in the long run. Data documenting the effectiveness of alternate forms of treatment are also necessary as are data on the effects of various forms of treatment that can help to improve the quality of care by updating treatment procedures. The basic knowledge required by doctors is also needed by policymakers and planners to decide how funds should be allocated among services and subpopulations.

The Need for Health Information for Particular Subgroups of the Population

State and local planners need data that describe the health characteristics of their populations and constituents because the present health care delivery arrangement places the locus of responsibility for planning at the State rather than Federal level. For this reason, acquiring State level data for planning is important. A number of State planning officials have suggested that the Federal Government provide leadership to help States with their own data collection procedures.

Decisions regarding health care policy and procedures should be more responsive to the views and evaluations of the public. Therefore, data are needed on constituent perceptions of health care delivery systems. The

lack of information concerning client attitudes and perceived needs make it difficult for planners to address constituent concerns.

A need also exists for improved health data on children of different ethnic groups. The lack of such data precludes determining whether adequate programs exist to meet the needs of these groups. Even where ethnic breakdowns of data do exist (such as in mortality or prevalence of disease statistics), the lack of other health related background information makes it difficult to understand why racial differences exist.

Policymakers and planners also require information for a variety of other subgroups of children such as:

- Chronically handicapped children
- Children with emotional and behavioral problems
- Institutionalized children
- Children in foster care
- Specific age groups such as adolescents
- Children of illegal aliens and
- Children of low financial sudsidy

In general, current methods of collecting and aggregating data make it difficult to pull out information for specific groups such as these.

Information about children "at risk" makes it possible to direct services and programs toward the most needy. Defining those at risk is, however, a difficult task. For instance, 10–15 percent of all children reportedly have psychosocial problems and 10–15 percent overuse health services. Whether or not these figures represent the same 10–15 percent of children is not determinable at present (*19*). In addition, the concept of "high risk" may not be defined adequately enough to determine who are the children at risk. In an analysis of data collected in Britain's National Survey of Health and Development, researchers found that 60 percent of the population could be described as "at risk" in some way. Although these results are based on a broad definition of risk, more restrictive criteria were found to be inadequate for predicting illness (*20*). Labeling individual children as "at risk" may be counterproductive if more attention is paid to the process of labeling than to understanding and treating the problem. Current definitions of handicap and risk are so ambiguous that Wadsworth and Morris recommend that "at risk" groups be identified at the local level by those providing the care rather than by more structured information systems (*20*).

The Need for Better Data on the Effectiveness of Child Health Programs

Information on the implementation, success, and quality of health programs for children is useful to policymakers for guiding their decisions about program changes and additions. Child advocacy groups need such information to monitor program compliance with legislated requirements. Current data are inadequate for the needs of both of these groups.

To evaluate health programs, it may be necessary to utilize data from sources other than the programs themselves. The best current example of the kind of effort that is required is the Health Insurance Study being

conducted by the Rand Corporation (*21*). This is a social experiment being conducted in six sites across the United States to investigate the effects of different health care financing arrangements. Health status is assessed for each person on entering the experiment, annually during the experiment, and on leaving after 3 or 5 years.

RECOMMENDATIONS

Changes in Existing Systems

The programs of the National Center for Health Statistics (NCHS) and related Federal statistical activities collect a great deal of worthwhile information concerning the health status of American children and the use of health care services by children and their families. These data could be made more useful if a few relatively simple changes were made in existing procedures.

(1) Reporting of Child Health Data by Single Years of Age

As noted above, the health of children and their use of medical services changes with age. Much of this change is obscured when child health data are tabulated and reported for broad age categories. In addition, age groupings are often different for different data sets.

However, the development of a standard set of age categories is not one recommendation. The varied missions of basic researchers and health policy analysts are not compatible with a single uniform set of categories. Rather, wherever possible, child health data should be tabulated and reported for single years of age. This would enable individual analysts to regroup the data according to their own interests and needs.

(2) Development of Consistent Ethnic Categories

Implementation of a standard set of categories and coding procedures is needed for identifying children and families of different ethnic groups. Some progress has been made toward this goal because a number of large-scale health surveys are conducted by the Bureau of the Census and therefore make use of the Bureau's ethnic questions and coding procedures. However, other programs such as the Vital Statistics System and the National Ambulatory Medical Care Survey are not as compatible as they might be with the census procedures.

(3) Better Coordination Among Different Health Survey Programs on Methods of Data Collection and Analysis

Considerable incompatibility occurs in the wording of survey questions and coding procedures among the different data collection programs within the NCHS. In fact, many instances occur where for the same health topic, the Health Interview Survey asks the question one way, the Health and Nutrition Examination Survey another, and the Ambulatory and

Medical Care Survey asks it still a third way. A synthesis of these data programs could be achieved by instituting compatible procedures wherever possible.

(4) More Funds for Analysis and Reporting of Maternal and Child Health Data

Much of the massive data collection described above suffers from inadequate analysis and reporting. The staffs of NCHS and other health agencies are not large enough to do justice to these data given the continual pressures for the generation of new information. Therefore, new funds should be allocated for the support of research, analysis, and reporting by scholars and analysts in universities and private research institutions throughout the country. These funds—which would represent only a fraction of the funds required to generate the data in the first place—could be awarded on a competitive basis with the stipulation that the research would involve no new data collection but only further analysis and synthesis of existing data sets.

(5) More Multivariate Analysis in Federal Statistical Reports

NCHS reports rarely present a full multivariate analysis of child and maternal health data. Therefore, to evaluate the relative importance of different socioeconomic and demographic variables is impossible unless the user has access to the raw data tapes and performs his or her own analysis. Multivariate analyses should be included as a routine feature of NCHS data reports.

(6) A Review of Recordkeeping and Reporting Requirements of Child Health Programs

Existing State and Federal recordkeeping and reporting requirements in the maternal and child health areas should be reviewed and assessed and only those routine forms of data be retained that have demonstrated their usefulness. Wherever possible, random sampling and auditing of existing records should be substituted for the collection of new and comprehensive data for whole populations. This review would best be conducted at the congressional level. If such a review is not conducted and data collection systems are not modified, excessive reporting demands may jeopardize the delivery of health services to children and the conduct of meaningful research in child health.

(7) The Need for Data on Normal Growth and Development as well as on Disease and Illness

In the past, the National Center for Health Statistics has collected and reported considerable information about the normal growth and development of American children. Analyses of physical growth patterns using data from the HES and HANES are an example. More recently, the mission of the NCHS has been interpreted more narrowly to focus on

measurements of disease and disability. Yet pediatrics practice and child health research have been placing a greater emphasis on the development of the whole child and on psychosocial disorders that do not fit easily into the traditional framework of infectious disease and injury. Therefore, the National Center for Health Statistics should continue to expand its data collection and analysis concerning the physical, motor, intellectual, social, and emotional development of normal children. This is particularly important because the health status of young children is poorly defined by existing methods of measuring disability in terms of the limitation or restriction of "usual activity."

Development of New Information Systems

(1) Better Data on Handicapping Conditions in Childhood

Data from a number of child surveys demonstrate a serious lack of agreement among parents, teachers, and physicians in the identification and labeling of handicapped children. Basic research is required to develop better definitions and the understanding of chronic and handicapping conditions among children, particularly of "new morbidity" conditions. Efforts should be made to develop and promulgate standard diagnostic procedures that will allow for more objective information about how many handicapped children actually exist and the kinds of assistance they are receiving. Basic research on the causes and treatment of these conditions is also needed.

(2) Federal Assistance for State and Local Information Systems

No easy or inexpensive solution is known concerning the need at State and local levels for more efficient data collecting and compiling of maternal and child health statistics. However, Federal agencies should assist State and local agencies that wish to expand their data collection through the provision of standard questionnaires and data collection procedures. Funds should also be available to encourage experimentation and innovation with new data collection procedures at the State and local level.

(3) Child Health Identification Numbers and the Use of Electronic Data Processing

Too many unresolved questions and issues still exist concerning the use of health identification numbers and computer based health information systems to make any sweeping recommendations in this area. A real concern is that such systems will come into existence through the growth of computerized records kept by insurance organizations without explicit planning. Therefore, developments in this area should be carefully monitored so that potential advantages can be realized and possible abuses or dangers avoided.

(4) The Need for a Longitudinal Research Program on Child Health and Development in the United States

Longitudinal research studies should most definitely be designed and implemented in the near future using national samples of American children. The program could evolve naturally through several existing survey programs of the NCHS. Specifically, a Natality Follow-Back Survey is now in existence and periodically takes random samples of all births in the United States in a given year and gathers supplementary information from the parents, attending physicians, and hospital records. This program should be continued on a regular basis. In addition, the children in the sample should be revisited in middle childhood and adolescence through the Health and Nutrition Examination Survey. This would link detailed and valid information concerning prenatal care, the circumstances of birth and health problems in infancy to the later growth, and development and health status of the child. Furthermore, the use of examination procedures would allow for objective measurement of a variety of health and developmental variables. The data collection should include reports from parents and teachers to provide multiple perspectives on the child's social adjustment and functioning in home and school environments.

Several advantages would be gained by incorporating a continuing program of longitudinal research into the statistical programs of the National Center for Health Statistics. First, it would be less expensive than designing a massive longitudinal study from scratch. Second, it would help ensure that the resulting data would be made available to the entire child health research community rather than being the property of a limited number of investigators. Third, such a mechanism would provide for the flexibility to focus on particular issues at different points in time. For example, one "wave" of the study could focus on environmental determinants of child health; another could gather information on health habits and preventive measures; and a third could focus on the health status of particular subpopulations, such as the children of recent immigrants to the United States.

It would be especially useful to oversample children who participate in federally funded health care programs to evaluate whether or not the health history or current status of these children is notably better than that of children from the same social and economic groups who have not participated in these programs. Finally, by applying a standard set of measures to successive cohorts of children it would be possible to get a comprehensive picture of how child health and health services are changing over time in the United States.

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REFERENCES

(1) Haggerty, R., K. Roghman, and I. B. Pless. *Child Health and the Community.* New York: John Wiley and Sons, 1975.

(2) Starfield, B. and I. B. Pless. "Constancy and Change in Physical Health." In Brim, O. and J. Kagan. *Constancy and Change in Human Development.* Cambridge, Mass.: Harvard University Press, 1980.

(3) Loney, J. "No Better Mousetrap." *APA Monitor:* 37, April 1980.

(4) Fishman, S. "Why Uniform Reporting Systems?" In *Public Health Conference on Records and Statistics.* DHEW Pub. No. PHS79–1214: 315, August 1979.

(5) Grossman, M., D. Coate, L. Edwards, R. Shakotoko, and D. Chernichovsky. "Determinants of Children's Health." Final Report to the National Center for Health Services Research. DHEW Pub., February 1980.

(6) U.S. Department of Health, Education, and Welfare. "Examination and Health History Findings Among Children and Youths 6–17 Years." *Vital and Health Statistics.* Series 11, No. 129, NCHS USDHEW Pub., Novemver 1973.

(7) Zill, N. *American Children: Happy, Healthy and Insecure.* New York: Doubleday-Anchor Press, 1981.

(8) Zill, N. "The Healthy Majority." *American Children: Happy, Healthy and Insecure.* Chapter 7. New York: Doubleday-Anchor Press, 1981.

(9) Stewart, W., L. Okada, and M. Lafferty. "Race Differences in Chronic Conditions Among Low-income Children." Paper presented at the American Public Health Association 107th Annual Meeting, November 1979.

(10) Stewart, W., L. Okada, and M. Lafferty. "Race Differences in Chronic Conditions Among Low-income Children." Abstracted in *Child and Family Health in America, Programs and Abstracts.* American Public Health Association 107th Annual Meeting: 262, November 4–8, 1979.

(11) Mount, R. "An Analysis of Variations in Self Report of Chronic Conditions for Poor Children." Working paper, Washington, D.C.: Child Trends, Inc., Spring 1980.

(12) White, K. "Contemporary Epidemiology." *International Journal of Epidemiology* 3: 4, 1974.

(13) Makamoto, R. "Health Care Financing Administration. Report to the U.S. National Committee on Vital and Health Statistics." October 12–13, 1977.

(14) U.S. Department of Health, Education, and Welfare. "Sources and Limitations of Data." *Health United States 1978.* Appendix I. Public Health Sevices, NCHS DHEW Pub. No. PHS78–1232: 437–464, December 1978.

(15) U.S. Department of Health, Education, and Welfare. *Health United States 1978.* Public Health Services, NCHS DHEW Pub. No. PHS78–1232: 445, December 1978.

(16) U.S. Department of Health, Education, and Welfare. "Session B: The State of Local Area Health Interview Survey." *Public Health Conference on Records and Statistics.* DHEW Pub. No. (PHS)79-1214: 51–89, August 1979.

(17) U.S. Department of Health, Education, and Welfare. "Examination and Health History Findings Among Children and Youths 6–17 Years." *Vital and Health Statistics.* Series 11, No. 129: 10, NCHS USDHEW Pub., November 1973.

(18) U.S. Department of Health, Education, and Welfare. "Ambulatory Care Utilization Patterns of Children and Young Adults: National Ambulatory Medical Care Survey (U.S. Jan.-Dec. 1975)." *Vital and Health Statistics.* Series 13, #39: NCHS USDHEW Pub. No. PHS78–1790., August 1978.

(19) Starfield, B. Presentation to the Academic Convocation in Honor of the International Year of the Child. Pittsburg, Penn., September 10, 1979.

(20) Wadsworth, M. and S. Morris. "Assessing Chances of Hospital Admission in Pre-school Children, Critical Evaluation." *Archives of Disease in Childhood* 53: 2, 1978.

(21) Eisen, M., C. Donald, J. Ware, and R. Brook. *Conceptualization and Measurement of Health for Children in the Health Insurance Study.* Rand Corporation, R–2313–HEW, May 1980.

SECTION VIII

SELECT PANEL FOR THE PROMOTION OF CHILD HEALTH WORKSHOP ON ORGANIZATION OF HEALTH SERVICES FEBRUARY 21–22, 1980

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SUMMARY AND THEMES

by
VICKI WEISFELD, M.P.H.

INTRODUCTION

The following summary of the Select Panel for the Promotion of Child Health's Workshop on Organization of Health Services, held February 21–22, 1980, generally follows the meeting's agenda.[1] Thus the first major section is on organizational mechanisms, the second on sources of support, and the third on mechanisms to ensure funds are spent effectively. Statements from the opening presentation by Dr. Robert Haggerty and the special presentation by Dr. C. Arden Miller have been interwoven in the text, where appropriate. The fourth section of the paper, Workshop Themes, includes topics covered during the 2-day discussion that apply broadly, or for other reasons appear to deserve special attention.

ORGANIZATIONAL MECHANISMS

The following are summaries of the six organizational mechanisms for reaching a greater number of infants, children, and pregnant women with needed health services that were presented and discussed at the workshop. The summaries are structured according to the following questions that were posed to the panelists in advance:

- Description
  - —Who is served
  - —Access
  - —Effectiveness
- What expansion-changes are needed in the program?
- Implications of changes in the present program
- Federal-State-local leverage points for change
- Comparisons with alternative investments

Two additional categories also seemed useful as the summaries were prepared:

- Research and data requirements
- Workshop participants' assessments of this program

[1]The agenda and a list of participants are appendix A.

Not every person describing an organizational mechanism addressed all of the above issues. In some cases, supporting statements from background papers provided to the workshop group are cited, but unless otherwise noted, descriptive statements about the programs discussed came from presenters. Therefore, these descriptions are not necessarily objective.

Publicly Financed Organized Care Settings (B. Lefkowitz)

Description

In her discussion of Federal primary care programs for the underserved, Bonnie Lefkowitz primarily considered the kind of program offered in the Community Health Centers (CHCs) and "downstream" Migrant Health Centers; most Children and Youth (C&Y) projects; some Maternity and Infant Care (M&I) projects; and some federally sponsored public health department clinics, hospital outpatient departments, and rural primary care centers.[2] These programs continue to expand, due to a sustained Federal commitment.

The programs provide a required set of primary care services, often provide "high priority" supplemental services, and usually provide social services, mental health services, and some support services; they employ their physicians and nurse practitioners and can use midlevel practitioners effectively; sometimes they provide environmental interventions; and they have a commitment to community participation.

Who is Served?

Approximately 20 million people are in high-poverty, medically underserved areas of the United States, and an additional 6–7 million are in isolated rural areas that are not necessarily poor. About 30 percent of the former group receive federally funded primary care,[3] and 15–20 percent of the latter group's needs are met by various Federal programs. About half of those served are children. According to a table provided to the workshop group, in 1974, neighborhood health centers were the source of care in 1.4 percent of health visits for children under 18 years of age;

[2]A variation on these programs was suggested in another participant's description of a Robert Wood Johnson Foundation project being conducted under the Urban Health Initiative. The plan is to produce a network of primary care centers in 12 urban areas, each to serve at least 15,000 people. The programs will identify all the health resources—Federal, State, and local government programs and private practitioners—serving a defined population and try to catalyze a collaboration among them. The program will be sponsored by large teaching hospitals or medical schools, with the foundation providing development and management support. The impact of this coordinated program will be assessed through comparisons with areas where only Medicaid is available and with areas where both Medicaid and a freestanding center are present. The study will also evaluate the feasibility of involving academic medical centers, looking for differences such involvement makes in attracting physicians, services offered, utilization patterns, community involvement, and so on.

[3]At another point in her presentation, Ms. Lefkowitz indicated that 4.8 million people are served by Federal primary care programs annually.

public health clinics and home care—of which some portion was probably through federally sponsored programs—provided care in an additional 3.6 and 1.3 percent of visits, respectively.

Access

Everyone in the defined geographic area served by one of these programs is eligible for services without other tests. Programs use sliding fee scales and are nondiscriminatory. Federal law requires that centers provide personnel knowledgeable about the language and culture of those served. Transportation is provided, when necessary.

Effectiveness

Ms. Lefkowitz cited special population studies showing decreases in hospitalizations, infant mortality rates, and incidence of preventable disease (rheumatic fever) in service areas.

What Expansion-Changes are Needed in the Program?

The CHC program may be a viable funding mechanism for some additional kinds of organized settings, such as hospital outpatient departments. However, to expand the current C&Y and M&I programs would require complex changes in Title V; the merits of such changes are under discussion at the Federal level. Other changes are currently proposed so that some small, rural health centers—unable to offer the broad range of mandated services—could receive grants. In general, Ms. Lefkowitz supports increased funding for both new and existing centers.

Another improvement in present programs may result from their renewed emphasis on preventive and psychosocial services. This might be accomplished by setting aside monies at the regional level for such services and allocating them to individual programs based on proposals included with their budget requests. The development of psychosocial services also would be fostered by better linkages with mental health services and special purpose grant programs.

Implications of Changes in the Present Program

To meet the needs of half of the population in underserved areas and to restore the preventive and psychosocial services by 1985 would require $2.3 billion—$590 million of this would be grant costs, part of the total would come from the National Health Service Corps, and the bulk would be covered by reimbursement from Medicare and Medicaid and self-pay. This estimate is only $170 million more than the present CHC program budget, but assumes increases in reimbursements and payments. On the other hand, it also assumes reforms in Medicaid that would increase the population served and services provided.

(For a discussion on Federal-State-local leverage points for change, see Ms. Lefkowitz's second presentation on network formation, summarized in a subsequent section.)

Research and Data Requirements

Ms. Lefkowitz's presentation pointed out a need for better information in at least two areas in which studies are apparently underway, namely (1) costs of CHC's compared to other providers (the Medicare comparisons she cited have numerous methodological weaknesses) and, (2) the number of people in underserved areas who receive acceptable services from other providers.

Workshop Participants' Assessment of this Program

Some CHC-type programs, if sponsored by an agency of local government, have been a springboard for a wide range of services; others, if no additional local funds were forthcoming, have become "islands of care." Other participants disagreed with the implication that local government sponsorship has a uniformly positive result. Some preferred a center with a strong consumer-community base apart from local health agencies; in a later discussion, the likelihood that the neediest communities would pursue the formation of a CHC was doubted.

Some centers have been found to be collections of unrelated services that do not promote true family care. Moreover, unstable funding has made recruiting and retaining professional staff very difficult.

The observation that the project grant approach produces results that are not necessarily generalizable was apparently quite apt with regard to the CHC model.

School Health Programs (R. Walling and R. Hearn)

Description

School health programs vary tremendously in scope and quality. Four promising programs described in the Robert Wood Johnson Foundation Special Report were provided to the workshop; their details are not repeated here. Robert Walling believes that schools in many areas are becoming more involved in health because they are beginning to realize the value of health as necessary in the development of the "whole child" and not just as a factor of education.

Who is Served?

Not only do schools have the potential to reach virtually every child starting at age 5, but Mr. Walling also noted that 39 States permit and 17 require that schools provide special education services for handicapped children beginning at age 3.[4]

[4]The potential for the schools to serve the needs of handicapped children under P.L. 94-142 is covered briefly in a later section, "Children with Special Needs."

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Implications of Changes in the Present Program

Workshop participants disagreed about the advisability of allocating a certain percentage of school budgets for an expanded health effort, to be administered by some (unspecified) agency. However, schools reportedly are interested in increasing Medicaid reimbursements.

Federal-State Leverage Points for Change

Improved school health programs must be a joint responsibility of the education and health care delivery systems. In the Cambridge project,[5] for example, the director had roles in both the hospital providing services and health department (the latter having control over the school health program). Some excellent cooperative arrangements between State health and education agencies were described, whereas another program, although physically located in a community school, was independent of the school board.

Research and Data Requirements

The Robert Wood Johnson Foundation has a national demonstration and evaluation program underway to assess:

(1) Whether basing nurse practitioners in school systems improves access
(2) To what extent they could meet the medical needs of children
(3) Whether they are effective in making referrals to other services and helping coordinate the range of services needed by children with complicated medical problems, and
(4) Whether stable funding can be worked out to perpetuate such programs, if they are found to be effective—for example, reallocating existing school health resources, reallocating all community categorical funds, or generating monies through third-party payers

Another Robert Wood Johnson Foundation research project enrolled pregnant women in a prenatal program conducted by the schools. The goal was to prevent subsequent handicaps and developmental deficiencies in children of the enrolled mothers. The results of the program are not yet evaluated, but it is the first and most comprehensive effort by a school to screen and support parents in the prenatal period.

Workshop Participants' Assessments of this Program

Although schools are ubiquitous and in some cases may be a viable setting for services, many schools may be unable to take on more comprehensive health programs and Medicaid may be unable to pay for them.

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[5]Described in the Robert Wood Johnson Foundation Special Report, Number One-1979, Robert Wood Johnson Foundation, Princeton, New Jersey.

Despite some experiments, access to primary and prenatal care—except possibly for pregnant adolescents—would not be increased by expanding school programs.

Prepaid Group Practices (M. Kagnoff and J. Holloman)

Description

No legislative reason is known as to why health maintenance organizations (HMO's)[6] could not be more active in serving the poor with a broader array of services. To exploit this potential, more is needed than merely patching the present system. The original design of the HMO Act of 1973 has produced HMO's that serve a rather small middle class group—which generally already has access to services—has encouraged the formation of for-profit HMO's to serve this same group and has effectively limited the participation of Medicaid recipients.

Who is Served?

According to a DHEW memorandum provided to the workshop group prior to of their meeting,[7] less than 1 percent of all eligible Medicaid beneficiaries are enrolled in HMO's.

Access

Under current law, HMO's cannot be established in areas where perhaps half the Nation's population lives. Participants expressed some concern that because of HMO's inherent cost-savings concerns, access to some services—particularly "boundary" area services—might be limited.

What Expansion-Changes are Needed in the Program?

Frequently, no incentive exists for Medicaid recipients, particularly those in urban areas, to enroll in an HMO. They may lose coverage for some services—for example, dental services—and they may lose the opportunity to choose their own physician, if they have such a choice.

Perhaps some aspects of the pediatric psychosocial clinic developed at the Kaiser Health Plan in San Diego can be generalized to other kinds of special health services and possibly provided by HMO's. Even though it should be possible to recommend that these services be included in HMO packages offered by Medicaid, promoting numerous special services reduces HMO's incentive to enroll Medicaid recipients and reinforces the idea that they need exceptional services. Moreover, almost no other HMO has Kaiser's financial stability, which allows it to offer innovative services.

[6]The term HMO, as used herein, is confined to HMO's of the prepaid group practice type, and excludes the individual practice association type.

[7]See appendix B.

Federal-State-Local Leverage Points for Change

A number of changes in the HMO program were suggested or implied by the participants. Because the public policy trend apparently is toward loosening Federal guidelines on HMO's, indirect approaches may be necessary to achieve the desired ends.

One problem potentially solvable at the State level is fluctuation in eligibility for Medicaid. Some people lose coverage this way and many of the "working poor" never have it.

To have a significant impact on HMO's, redefinition of the fiscal implications of Medicaid was deemed necessary, perhaps by beginning federalization. To prompt different patterns of care, some fundamental changes were suggested that would undoubtedly require amendments to the current HMO law: this would give HMO's specific geographic areas to provide services to either change ownership and governance or give members a financial stake in the operation thereby increasing their concerns about efficiency.

The Health Care Financing Administration is supporting an intiative to increase the number of qualified HMO's that contract with States to serve Medicaid beneficiaries and to increase the number of Medicare-Medicaid beneficiaries enrolling in HMO's.

For the involved government agencies, barriers exist in developing contracting mechanisms, determining capitation rates, and ensuring quality of services. For the HMO providers, barriers are the high cost of marketing to Medicaid beneficiaries, which might be shared by Government, and additonal Government regulations.

Research and Data Requirements

More information is needed concerning ways to set appropriate capitation rates for Medicaid recipients.

Workshop Participants' Assessments of this Program

A number of possible advantages of HMO's providing services for pregnant women, infants, and children were suggested by the group. One was the possibility for offering special services, such as the pediatric psychosocial clinic, in the primary care setting. Additionally, HMO's offer 24-hour coverage by pediatricians and child-trained mental health professionals.

The memorandum provided the group cites "conservative" estimates of a 15-percent savings in medical care delivery costs for each Medicaid beneficiary transferring from fee-for-service to HMO provider, aside from the benefits of receiving care from an organized system that guarantees access and has some quality assurance controls. Also, HMO's have at least a philosophical orientation toward preventive services.

The distinction of HMO's to provide special supportive services for Medicaid recipients, to minimize costs, has been noted. Other beliefs expressed about HMO motivations were that HMO's do not want Medicaid patients because they have high visit rates, are generally "sicker," and require more frequent hospitalizations.

With regard to HMO's potential effectiveness in serving the "near poor," or the "working poor," employers of low-paid, marginal workers may be likely to select the least expensive package of services available. Differential payments or other incentives may be necessary to coax HMO's to offer special services or to offer an upgraded basic package of services that would be available to the working poor.

Public Health Departments
(C.A. Miller)

Description

Public health departments have expanded their services to meet the needs of certain public programs, like EPSDT, and now most cities offer pediatric primary care through their health departments.

Legally, everyone in the United States is covered by public health departments under State statutes. Some States abrogate this authority to the local level; others use their local departments only as satellites; still others divide their States into health districts.

Who is Served?

According to a table provided the workshop group, 3.6 percent of children under 18 years of age used public health clinics for an ambulatory care visit in 1974. Public health department clinics provided prenatal care for 12.8 percent of all live births in 1976 (and a much higher percentage of births among poor women). Nationwide in 1976, they provided one-fifth of new mothers with maternity nursing services. From two-thirds to three-fourths of adolescent contraceptive users are served by public health department family planning clinics.

Access

Although public health departments theoretically cover everyone, the best departments are located where the full spectrum of health providers are best. The opposite is also true. Without additional support, many State and local public health departments have a limited capacity to provide primary health care services. If they must provide incomplete services, they nevertheless could link different kinds of providers to such public health programs as screening and outreach, thus becoming a "broker" of health services.

Effectiveness

Some participants strongly believe that public health department programs have proved themselves well able to provide women's and children's health care effectively. However, only anecdotal evidence and case studies support this view.

What Expansion-Changes are Needed in the Program?

Although more than half of local health departments are rendering some personal health services, they need better facilities, staff, and funding. These are significant constraints, made worse in some areas by local physicians' opposition to program expansion.

Federal-State-Local Leverage Points for Change

National standards for health status and service utilization would foster greater consistency among health department programs. A study of 15 outstanding local health departments found that they already believe they receive more help from Federal than State sources. Pass-through Federal funding for local departments may therefore be a logical approach. Monies from Title V, or formula grants, go to local health departments, but might do so more efficiently and be more targeted toward child health services if they were obtained directly.

Research and Data Requirements

Good data about public health department visits—other than the single contact type—are not available. Cost comparisons with other providers of ambulatory services are uncertain. Studies are needed concerning the quality of care provided by public health departments, which might put to rest the notion that they provide "poor programs for poor people" and point out remediable deficiencies.

Workshop Participants' Assessments of this Program

Among the prime advantages of public health departments is their near ubiquity. In some places, they have a good record of providing well-child and other primary and secondary prevention services. Public health department programs can and do use nurse practitioners and other midlevel practitioners as well. Moreover, to the extent that people trained in these fields have developed concerns for the psychosocial aspects of health, the quality of the service they provide may be enhanced.

In many localities, on the other hand, public health departments have been creatures of the political establishment and would require independence from local physicians and county medical societies. Some public health departments have a reputation for incompetence that may be difficult to overcome—aptly described as a modern manifestation of the old Panacea–Hygeia conflict.

Presumably, public health department programs would be subject to the same criticism leveled at CHCs—that they can be collections of disparate, disjointed services; however, the material provided the workshop group posited that "the concept of comprehensive care is much cherished but the evidence that it results in improved health status is equivocal at best."

Hospital Outpatient Departments (M. Heagarty)

Description

For historical and social reasons, hospitals continue to be the "provider of choice" for many people, especially the poor, although increased use of the emergency room for ambulatory care cuts across social class lines. People have been taught to view hospitals as the ultimate source of medical care; in many cities no other options exist, particularly for pediatric care; and, an abiding attachment is present to the hospital where a child is born.

Although not set up to provide ambulatory care, many large, distinguished metropolitan hospitals must do so because they are located in the midst of many poor people. Municipal public hospitals, in New York and elsewhere, which have a special responsibility to care for these groups, find themselves under increasing attack from the middle class over costs.

Who is Served?

In large cities, pediatric outpatient departments are rather widely available.[8] Outside the cities, hospitals probably serve a consulting role for area pediatricians. In a table provided the workshop group, 8.2 percent of ambulatory visits for children under 18 years of age were to hospital outpatient clinics and 16.2 percent were to emergency rooms during 1974. People seek ambulatory services from hospitals for many needs, namely (1) well-baby care (from the site of the child's birth), (2) emergencies (both true emergencies[9] and "outpatient visits"), and (3) followup in specialty clinics for disorders prompting a previous hospitalization. The populations needing these services are not congruent with the population needing primary care.

The population served is further fragmented because voluntary hospitals "skim" the Medicaid eligibles from their surrounding communities, leaving the public hospitals with the medically indigent and illegal aliens for whom reimbursement for services is impossible.

Effectiveness

Health clinic data cited showed a decline in unscheduled emergency room visits when people were given continuity of care. This occurs also when the care is given in a hospital outpatient service, particularly if physicians are available by telephone.

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[8]One workshop participant, in visiting 15–20 hospitals in the urban–suburban San Francisco Bay Area, found that all had outpatient services and provided emergency care, but few had pediatric outpatient departments.

[9]Services to meet true pediatric emergencies are discussed briefly in the subsequent section, "Children with Special Needs."

What Expansion-Changes are Needed in the Program?

To encourage outpatient services, changes are needed in the financial incentives of hospitals that would increase the importance of outpatient care relative to inpatient care, remove the barriers to outpatient primary care for the medically indigent, and stabilize funding for outpatient services so that they can attract physicians. These changes would reinforce the small trend toward establishing primary care group practices in hospitals and would raise their currently low status.

Greater efforts are needed to break the social isolation of people in hospitals' service areas. Better relationships with free-standing child and community health centers in the area would help and would enable referrals to more appropriate units of care. One model would be to have the hospital responsible for developing linkages, with the client free to choose among available providers. The system must be kept flexible to meet certain patients (who will not make or keep appointments, for example) on their own terms. Yet the needs of such patients must not dominate planning. Relationships also should be established with schools and day care centers. Perhaps as a first step, however, better interfaces should be established between emergency rooms and hospital outpatient departments.

Implications of Changes in the Present Program

Hospital outpatient departments particularly need casefinders and outreach personnel rather than social workers. These workers need not be professionals, particularly if they can be supervised by a public health nurse.

Federal-State-Local Leverage Points for Change

Dr. Heagarty was uncertain whether the Federal Government's new outpatient department reform legislation will do any good, but she said it recognizes the need for capital funds. Categorical funding programs cause the hospital outpatient departments that rely on them to shift and contort their program emphasis, lose continuity of services, and spend inordinate staff time and energy meeting changing requirements. Instead, what is needed is support for the basic systems, and opening up financial access, and in the long run, decentralization of primary care to the neighborhood level.

Workshop Participants' Assessments of this Program

The advantages of the population's acceptance of this service site—which in some communities exceeds their acceptance of community health centers—may be unrelated to the quality of care delivered. Quality of care in a hospital outpatient department may suffer, because of the litany of problems recited by the workshop group—anonymity, fragmentation, crisis orientation, episodic care, high cost, and general inappropriateness for delivering primary care services. Although personnel in emergency

rooms are increasingly trained to provide family care, pediatricians are rarely present and the overall quality of pediatric care is probably unnecessarily poor.

The advantages of scale presented by the hospital setting are not necessarily realized. Described pejoratively as bureaucratic, nevertheless hospitals—and especially ambulatory services—are often not well organized and managed.

Emergency room care costs more than that provided in family health care programs because of greater use of laboratory and X-ray services. Prospective budgeting could control any overuse of ancillary services. Hospitals also may use outpatient departments to generate business for unfilled beds, a temptation that could be removed by decreasing financial incentives for inpatient care.

Home Visiting
(S. Stoiber)

Description

Preliminary plans were described for a Federal program to provide a home visiting service employing either nurses or lay visitors.[10] This program would be one part of the Surgeon General's larger objectives of improving the efficiency of current programs directed at pregnant women and high-risk children, encouraging better integration of local service systems for identifying high-risk pregnant women and infants and bringing them into continuing care, and where such systems do not exist, encouraging their establishment. If a home visiting service were judged suitable for helping achieve these goals, its roles would be to:

- Identify pregnant women and infants at high risk
- Assess whether they have a stable source of care or whether they need to be put in touch with community resources
- Assess whether the home environment has enough basic resources to care for the infant and link the parents to community resources if necessary, and
- Where community services are not available, especially in rural areas, encourage health departments to provide them

Who Would be Served?

The recipients of this program are not yet determined. Eventually, it might be an entitlement program, available to every woman and infant, but probably initially would be restricted to high-risk women, i.e., women in families whose income is less than 150 percent of the poverty level.

[10] A nurse visiting project in Elmira, New York, was described, which has enrolled pregnant volunteers who met certain criteria used to assess high risk. In their visits, the nurses (not necessarily registered nurses or nurse practitioners) follow a carefully designed protocol. Women with more complex needs receive more intensive services over a longer period. Feedback about the visits is given to the woman's physician or public health clinic provider. Although the program is largely educational with emphasis on nutrition and use of alcohol and cigarettes during pregnancy, screening and transportation are provided when needed. Thorough evaluation of the program has been made mandatory, but results are not yet available.

Access

Past programs of this type were staffed by public health nurses, whose visible presence in the community promoted case finding through informal referrals.[11]

Effectiveness

The workshop group highly agreed that the public health nurse home visitor programs in the past have been very successful. One demonstration was cited in which nursing visits began with a hospital visit to every mother and infant after delivery and continued in the home after discharge and in which health indicators and infant mortality rates both improved "dramatically."

To increase the likelihood of effectiveness, advances in understanding about the importance of attachment in the newborn period and other developmental issues should be incorporated in program planning.

Implications of the Program

The Surgeon General's office has begun to assess the funding and manpower resources needed for the home visiting program, to examine possible civil liberties and privacy concerns, and to determine ways to connect this service with sources of continuing family care.

If only those at the highest risk for low birth weight (234,884 such infants were born in 1977) and congenital abnormalities (50,000 in 1977) were provided with five to seven visits, the program would require 300 public health nurses and cost $10–15 million. If the program tried to reach the Nation's 1.2 million low-income pregnant women—the majority of whom are Medicaid ineligible—with an average of five visits, the program would cost $200–300 million (figures are in 1980 dollars[12]). No funds are included for followup care.

Although at least one workshop participant believed the trained manpower for such a program already exists among public health nurses, this might not be true nationally and disagreement has erupted concerning the level of training that the home visitors would need. The Elmira experience supports the view that the actual home visitors, who must be able to identify a high-risk mother and assess the home, do not need a high level of training. To supervise the program or to intervene requires more training.

In all the models that the department has examined, none systematically identify high-risk pregnant women and notify a nursing service to contact them. In the past, visits by nurses apparently did not rouse concerns about privacy, but people's concepts of privacy may have changed greatly in recent years, and racial and cultural differences

[11]The Elmira, New York, project informed all providers in the community—including pediatricians and obstetricians—about its services.

[12]The scale of the program envisioned by the department was unclear at the workshop. Ms. Stoiber says that in departmental planning, high-risk is being called low income, but her estimates of costs separate them.

between public health personnel and the recipients of the service could exacerbate any such concerns. Privacy may be a particular problem in adolescent pregnancies, if health programs are linked to the schools.

Federal-State-Local Leverage Points

One goal of the program is to integrate existing local services. A likely setting for the program is local health departments, but other institutional homes could be found for these services in some locales where that was more appropriate. In general, the organizational arrangements—both with local agencies and other Federal funded programs—and oversight provisions have not been developed yet. To test various ways of linking these services, the program may be done first in demonstration.

Comparison with Alternative Investments

If the more expensive program is selected, its advantages must be weighed against those of a comprehensive care system.

SOURCES OF SUPPORT FOR IMPROVED ORGANIZATIONAL MECHANISMS

Health Services Districts (A. Nichols)

The health service district as a means of funding, organizing, and delivering health care in underserved areas was described by Andrew Nichols. Health service districts would embody some of the organizational characteristics of local school and special districts[13]. They would have the authority to issue bonds and raise taxes to provide medical services. Thus, local residents would pay at least part of the program's costs. State government would be expected to provide a significant portion of funding, with recourse to Federal support through such programs as Medicare and Medicaid and through special purpose grants and manpower programs, such as the National Health Service Corps. This combination of local, State, and Federal funding would be accomplished without an increase in Federal bureaucracy. Districts would have to meet the requirements and restrictions imposed by the Federal programs.

Arizona law provides for local initiation of a request for establishing a health service district and local elections for district board members. The board would determine the services to be provided and their modes of delivery and be responsible for the district's management. Accountability would be direct because board members not responsive to local needs and demands could be recalled or not reelected. Services could be provided by staff hired by the health service district, through contracts with nearby organizations—HMO's, for example—or through relationships with exist-

[13] Arizona is the only State with enabling legislation for health service districts, but it has not yet established any.

ing public health agencies. (Dr. Nichols believes local health departments, because of their negative image, cannot organize health service districts themselves.)

The health service district concept has won the support of the American Public Health Association and Rural America. It embodies the principle of organization favored by the Commission on the Costs of Medical Care that the primary responsibility for providing health service should be local, but if local moneys are inadequate, the responsibility should move to the next higher level of government—and never higher than necessary. Dr. Nichols believes that health service district proposals have the potential for both liberal and conservative support. Potential disadvantages of the health service district model identified by the workshop participants were:

(1) The tax base in areas of the greatest need is inadequate. (Dr. Nichols said this problem could be overcome by dedicated leadership—"evangelism"—and technical assistance.) Local bond issues to support the program probably have slim hope of passage, given that more traditional and more widely acceptable school bond proposals are frequently rejected. In fact, the "tax revolt" generally appears to make the proposal's timing inauspicious.

(2) Inequities may arise because multiple districts encourage multiple standards, as has occurred in welfare programs.

(3) Coordination with other State and Federal public health programs will be difficult to achieve.

(4) Asking service recipients to monitor the program and the performance of board members is untenable.

(5) The program is likely to rouse opposition from providers and insurers, who are strongest at the local level. To forestall this conflict, perhaps an accountable district structure could assume a governing role, shy of directly providing most services. If some service gaps remained—which might well occur among services the Panel is most concerned with—the district could supply these. However, because districts would be established in medically underserved areas, opposition from organized providers might be minimal. Public-private sources of care could operate in parallel, as do public and private school systems.

Private Insurance–Public Insurance–Federal Grants (S. Jones and R. Blendon)

Stan Jones and Robert Blendon discussed the relative merits of attempts to improve private insurance, public insurance, and Federal grants to increase services for maternal and child health. Both speakers agreed that major changes in the present health care system appear unlikely in the near future and that improvements through "adjusting the interfaces" among current programs or "incremental shifts in the

responsibilities of local units of government" are the most that can be expected.

Mr. Jones proposes substantial modification to the present public and private insurance system, aimed at achieving comprehensive benefits, universal access, and appropriate use of health services for pregnant women and children. He presented the following rationales for exploiting the private insurance system:

(1) More than half of the money for personal health care services comes from private sources. Changes in this sector would therefore have a large impact.

(2) To the extent that mothers and children are covered better with private funds, the burden on publicly funded programs is decreased. (For example, gaps in coverage that occur at the end of employment could be filled.)

(3) Like the public insurance system, the private insurance system is rapidly increasing in costs, which is attracting political lightning, perhaps increasing the acceptability of proposals for change.

(4) Improvements in the third-party payment system (both public and private) are more acceptable to insurers and private physicians than services directly provided or subsidized by the Federal Government.

(5) Public policy experience with the strengths and weaknesses of the insurance mechanism makes it easier to amend in the desired direction. In fact some good State models show that such changes in the private insurance system can be achieved and, moreover, that insurers—notably Blue Cross and Blue Shield—may be increasingly responsive to Federal initiatives, thereby escaping haphazard and inconsistent State regulations. (However, Mr. Jones doubts that the Panel's recommendations will receive support from either the insurance industry or providers; the private sector will not negotiate until a specific proposal is under serious consideration.)

(6) Private insurance should not be equated with fee-for-service care. The insurance system can be structured to favor capitation or other organization schemes deemed desirable.

Numerous disadvantages of the insurance system—some of which might be remediable, as described—were noted by Mr. Jones, Mr. Blendon, and the workshop participants. One of the most pronounced of these is that insurance, in general, cannot be targeted. (The "maternity option" offered by some plans is an exception.) A small number of people require the greatest number of services, and insurance cannot adequately cover high-risk groups. Insurance theoretically spreads the cost of services for high-risk individuals over a broad population; however, in practice, increasing insurance benefits may only stimulate demand among healthy people for those kinds of services that insurance is effective in paying for (minor office care by pediatricians) and special support services that are not in great demand may remain uncovered. This problem might be overcome, for example, through regulations requiring coverage of certain services. Insurance companies could be directed to subsidize these expanded programs from other income sources or through a surcharge on

group and individual premiums. Because some people cannot afford present insurance premiums, a surcharge also could make insurance more affordable. Private insurers presently have no obligation to see that people actually receive the covered services.

Broad-based insurance is only marginally effective in reducing infant mortality. Moreover, insurance does not reduce social class differentials in infant mortality rates and, in fact, may increase them. (Although Medicaid coverage has resulted in increased physician visits for low-income beneficiaries, the rate of visits for children covered by the program has not increased.)

Expanded maternal and child health insurance programs might be marketed in unfair or misleading ways, as supplemental insurance for the elderly has been. Similar to the solution proposed for the elderly's insurance programs, maternal and child health insurance plans could be subject to Federal standards that would ensure at least basic coverage. Presently, some States have such standards even for Blue Cross–Blue Shield plans.

Lastly, ensuring the quality of the covered services that are provided by private sources is problematic. Aspects of care related to quality that insurance could promote are access, continuity of care, and more appropriate organization of services.

In Mr. Blendon's assessment, the possibility of expanding private (or even public) insurance coverage to a broader population or to a broader group of services is unlikely, considering the overwhelming opposite trend. State officials concerned with rising health care costs are reducing services for the poor or tightening Medicaid eligibility. For example, the California State Health Department—faced with a possible 30-percent budget cut had the new tax reduction referendum been passed—is looking to first decrease the MediCal budget, its largest program. Even unions are agreeing to drop services from the health benefits packages of their contracts. Insurance companies are most likely to delete "boundary" services first, ambulatory care services next, and hospital services last.

The alternative to insurance that Mr. Blendon proposes is the Federal grant mechanism, partly because he believes that the constituency around children has to support specific services—for example, high-risk units, outreach, and screening programs.

An advantage to the project grant mechanism is that it allows experimentation and combinations of approaches, including one-on-one interdisciplinary services and even environmental interventions. On the other hand, locales without resources may not take the initiative to seek project funding, resulting in unequal access to services. To some extent, this problem could be addressed through technical assistance.

Targeted children's services were supported by some participants because even if services were universally available, children's services might have to be provided separately. Child health services may need to maintain their identity—particularly in the view of staff.

Identifying pregnant women and infants at high risk is difficult. High-risk registries have not proved to be reliably predictive either overseas or in the United States. However, if every community had an established, permanent program for serving high-risk mothers and children, they could

move under and out from its umbrella as necessary. This kind of stability is often lacking in grant programs.

Several examples of the experiences of other countries were provided by the group. In Sweden, which has one of the world's lowest infant mortality rates, a network of prenatal care services reaches nearly everyone. Specialized services are available for high-risk women. The lesson is that the universal service is prerequisite to effective targeted services. In some European countries, high risk is determined by the vulnerability of the family and not by disease indicators; similar efforts to take psychosocial factors into consideration are needed here. To some extent, the experiences of European countries are inapplicable to the United States because of their generally homogeneous populations and high tax rates for supporting health services; however, with some adaptation, their underlying principles may nevertheless be relevant.

In summary, the key to obtaining the kinds of services and organization that the Panel is likely to want to recommend, Mr. Jones suggested, is some sort of unification or integration of financing. Tapping into the private insurance dollar to obtain more maternal and child health services (as opposed to expanding Medicaid) would not jeopardize Federal funding for project grants.

If grant programs were to replace insurance support for institutions offering special services—especially for hospitals, whose ability to provide such services is becoming increasingly constrained—the pressure to cut back on services that is now coming from insurers might well be replaced by similar pressure from politicians.

Future consideration concerns the recommendation for a mandated standard set of insurance benefits that would make it politically impossible to also obtain better grant programs targeted toward high-risk populations. The political feasibility of achieving change might be improved by suggesting strategies that do not call for all new money—as emphasized in the discussion of the proposed home visiting program. Current services budgets could be reprogrammed and used more effectively without new entitlements and funding sources.

Statewide Systems of Community Child Health Centers (J. MacQueen)

The goal of Iowa's statewide network of child health centers is to provide health and health-related services to children whose needs are not currently addressed in traditional treatment settings. Iowa developed this system under a 3-year special grant from the Maternal and Child Health Service and the Bureau of Education for the Handicapped. Grantees under this program were to develop programs demonstrating cooperation between State education and health agencies. In planning the child health centers, now operating in each of the State's 14 planning regions, a deliberate attempt was made to ensure that they are not closely identified with any strong community education or health program.

Each center is staffed by a specially trained pediatric nurse practitioner. Physicians who work in the centers receive special training in developmental pediatrics. The remainder of the centers' professional staff is comprised of people employed in child-caring agencies in the community, thus avoiding duplication of personnel and services; this allows the center to serve as a meeting place for representatives of various agencies thereby fostering interagency cooperation.

The services of the child health centers are available to all children. The community board selects the services to be offered from a list provided by the State agency. Many categories of necessary services cannot be provided effectively in private physicians' offices or through traditional modes of service organization. Examples of the programs provided are:

(1) *Integrated evaluation and planning clinics.* Children are referred by schools, other agencies, or private physicians. Parents also may self-refer. The clinics provide diagnostic, evaluation, and planning services, the latter involving not only the planning clinic staff who are involved with the evaluation, but also the schoolteachers and others involved in the child's care. These planning sessions are stressful, but the outcome is positive—the creation of a community plan of services and a community support team for the child. Such a system is necessary because letters of diagnosis sent to schools are notoriously inadequate in prompting appropriate action. Uncorrected diagnostic errors and "let's wait and see" approaches can be devastating.

(2) *Planning child health services.* Using an Iowa study of regional demographic, social status, and child health care system data, the child health center boards are encouraged to identify unmet needs in their areas. Although many of them are proceeding cautiously with this new responsibility, one of the program's basic purposes is to increase community involvement in program development.

(3) *High-risk infant followup program.*

(4) *Other.* Services conducted that include pediatric coronary heart disease prevention programs, obesity clinics, genetic counseling clinics, and information referral services.

Dr. MacQueen concludes that this program is an Iowa solution (the success of the approach may be a result of the stability of Iowa's other social, political, and economic institutions, notably its schools), but its principles may be applicable in other States.

The project approach—even in a statewide program—permits "boundary" services to be offered. Because of inadequate methods of evaluation, providing such services on a piecemeal fee-for-service basis is highly inadvisable. Another advantage of this program is that it provides agencies faced with diagnostic problems—schools, juvenile courts, adoption agencies, even private physicians—a place to turn. Other primary service providers could possibly plug into this system to achieve an integration of services in boundary areas.

Finally, the system offers the opportunity for continuing education of community leaders and health service providers about local child health needs and the value of coordinated services.

ENSURING EFFECTIVE USE OF FEDERAL CHILD HEALTH FUNDS[14]

The California Situation (B. Myers)

California's long history of leadership in providing a broad range of maternal and child health services is threatened seriously by recent tax cuts that would cut State income tax revenues in half.[15] Although the full impact of Propositions 13 and 4 has not yet been felt by the State (because of previous budget surpluses), the effects of the new proposal would be much greater and appear rather quickly. In preparation for its possible enactment, all State departments are working toward cutting their budgets by 30 percent—for the State health department, this cut would be $1.5 billion. The health department is concentrating its efforts on reductions in the MediCal program, which comprises $4.0 billion of the department's $4.8 billion budget. Not only is MediCal the department's largest program, which makes cuts there inevitable, but by so doing, Ms. Myers hopes to save programs that either have the greatest impact on health status or meet targeted needs. For example, some State programs cover many people for whom Federal moneys are not available.

As other means of saving these programs, the department is trying to persuade private insurers to pick up some services and is attempting to increase the effectiveness of current programs by omitting overlaps that would garner extra moneys to fill some coverage gaps. To support this effort, she is hoping for Federal Government flexibility, even if more funds are not provided, and plans to build on the traditional strength of California's county health departments.

The streamlining of State child health services is taking place with the guidance of reviews conducted by both an external Child Health Board and an internal group. In these consolidation efforts, the concept of pooling child health funds may be attempted. Both private and public providers would be included in the program with the accountability structure residing in a State office of maternal and child health. Ms. Myers believes that the State health department is a necessary intermediary between Federal programs and local services and is concerned about Federal preemption of State laws.

Much of the workshop discussion centered on the question of State accountability. Ms. Myers' view is that structures to ensure accountability, including fiscal responsibility, must exist at each level of government. Federal programs could set minimum standards, which States could exceed through service models of their own choosing. If a State does not do its part as a guarantor of services or in ensuring that a certain population receives care, State revenue-sharing moneys could revert to the

[14]These presentations are not summarized in the order listed on the agenda because the third presentation, by Ms. Lefkowitz, summarized some of the problems described by Ms. Myers and Dr. Silver.

[15]This proposal was defeated in a State referendum, but its effects on State health officials' planning are instructive.

Federal Government, which then would have the responsibility to provide the services. A better way to pursue accountability may be through negotiated contracts rather than through regulation, although workshop participants noted that the Federal Government in the past has not been an effective negotiator.

Two additional suggestions were considered useful, namely (1) that States designate agencies to keep track of child health status and health services, irrespective of provider (California's health statistics department is currently developing a child health information system), and (2) that one-half of State matching funds for the program be in "hard cash"—rather than in-kind services.

Statewide Demonstrations Using Pooled Federal Child Health Funds (G. Silver)

As a long-term goal, Dr. Silver proposes a major effort to strengthen families along several dimensions, as described in the Carnegie Council on Children report, *All Our Children*. More immediately, he proposes the establishment of a comprehensive preventive service—including psychosocial services—targeted for children that would be organized at the State level and funded partly by Federal moneys; the program would involve home and school but would remain separate from the medical sector and would be staffed, operated, and administered by specially trained nurse practitioners. Pregnancy and childbirth would be accommodated within the preventive program, using nurse midwives, except when high-risk or medical conditions necessitated involvement of the medical care system. Dr. Silver suggests that several statewide demonstrations of such a service be implemented. This could be accomplished by redirecting current maternal and child health program funds (through waivers) and would not require new legislation. Such a new structure is needed, he believes, because adding more money to current programs is unlikely to produce improvements in child health.

Again, the principal demurrals by the workshop group related to State accountability. Permitting States to decide which services to provide—especially through allowing waivers—was troublesome to those participants whose past experiences with States have produced distrust. However, many participants appeared to believe that certain States should be capable of providing useful demonstrations.

Dr. Silver agreed that Federal standards are needed; if these were met, States might obtain funding relatively unfettered. Certain universal standards could be, for example, nondiscrimination, a commitment to serve the poor and measured outcomes. These standards would be much less restrictive than meeting the requirements of the present multiple Federal maternal and child health programs. Dr. Silver noted that the Federal Government does very little monitoring and evaluation even when it is mandated.

Whether it would be possible or desirable to separate preventive, curative, and health promotion services, or to separate biomedical and

psychosocial factors, or to separate the roles of nurses and physicians as neatly as Dr. Silver implies was questioned. Alternatively, the best aspects of multidisciplinary settings could be strengthened.

A Proposed Federal Initiative (B. Lefkowitz)

Beginning in the fall of 1980, the Federal Government hopes to start resolving some of the problems previously discussed by selectively expanding State and local government involvement in planning, coordinating, managing, and delivering preventive and primary health services to underserved populations. The fiscal year 1981 budget request includes $5 million to be awarded to selected State and local government agencies for the planning and coordinating function. This program is part of the department's effort to fix two kinds of programs:

(1) Title V, State formula grants, which have lacked a mission; the guarantor-of-services role of Title V agencies would be strengthened, so that they will do more than identify service gaps; the Federal Government will provide more guidance, although not necessarily increased management or control

(2) Project grants, whose advantages are targeting, community participation, and the ability to circumvent recalcitrant State and local governments

The new program planned for FY 1981 would encourage consolidation of project grants by the State or local government agencies selected for awards. State and local governments have some advantages over individual project grantees—such as statutory powers to fill in service gaps, an overview of community problems, and the ability to create service networks. Ideally, the Federal Government hopes to balance the advantages of giving authority to State or local agencies with those of supporting project grantees. (This program could mesh with the plan to strengthen Title V, but they are separate efforts.)

Some successful, innovative models have arisen at both the State and local government levels, on which the new program plans to build. The State or local government role could range from that of a coordinator, to a funding conduit, to a monitor and manager, to a service provider. Units of State and local government that apply for funds would be free to develop their own plans for coordinating Federal, State, and local public and private health resources. The demonstration program would use relaxed application and reporting procedures and increase their conformity, but will not require legislative change.

In return for this flexibility, services to be offered under the new program must meet Federal standards. They must be accessible—physically, geographically, and financially—provide continuity of care, be oriented toward the family and social setting, be coordinated with related services—mental health, food assistance, and day care, for example—be managed efficiently, and be of high quality.

Successful applicants will be those State and local government agencies whose plans are judged to demonstrate willingness and capability to

participate in the experiment and to meet certain goals. The Department of Health and Human Services would negotiate a performance agreement with them, which could be a device to ensure that efforts are made to promote child health. For example, the agreement could place heavy emphasis on providing maternal and child health services, or the target populations specified could include pregnant women, infants, and children. Furthermore, the performance measures set could reflect this emphasis—for example, reaching a higher proportion of women with prenatal services in the first trimester of pregnancy.

Plans would have to specify linkages among services and provide for monitoring the efficiency, cost effectiveness, an quality of services. They would have to predict costs and estimate benefits of the new coordinated plan versus continuation of present project-by-project support. Finally, they would have to incorporate substantive consumer input—especially when community health centers that had enjoyed a high degree of consumer participation were to be included.

The new Federal program would encourage pluralism in service arrangements, recognizing different capabilities among State and local governments. In contract to statewide plans, it allows the Federal Government the flexibility to reach a good local health agency directly if the State agency is ineffective.

Despite the gloomy appraisal that States now have a stake in doing worse by poor people, Ms. Lefkowitz said this proposal has raised considerable interest among some State and local governments.

The proposal was viewed by workshop participants as perpetuating State health departments' languishing condition by allowing them to continue to be bypassed. Simultaneously, the capacity of some local government agencies to provide health services also may be weakening. The result of the program therefore may be to reinforce only the strong State and local agencies and provide nothing for the flagging ones.

WORKSHOP THEMES

During the discussions of the specific proposals for organizing, funding, and ensuring the effectiveness of maternal and child health services, a number of issues emerged that have relevance beyond the specific context in which they were raised or that seem to deserve independent consideration. To some extent they have been touched on in the previous text, but they will receive a somewhat fuller examination here.

Topics selected for separate consideration are:

- Children with special needs
- The role of parents
- The role of consumers
- The role of the private sector
- Characteristics of programs
- Manpower and training
- Incentives
- Organizational matters
- Advantages and disadvantages of project grant funding

- Long-term versus short-term goals
- Federal-State-local government
- Research requirements

Children with Special Needs

In addition to the usual groups of children receiving public health programs, a number of other groups were considered in special need of attention:

(1) *Children needing continuing care.* Ensuring ongoing services for children who have chronic conditions or severe developmental disabilities can become a problem when programs are targeted at infants and early childhood. Primary care systems must improve their capacity to link such children with effective secondary and tertiary care providers. A Robert Wood Johnson Foundation study is assessing whether nurse practitioners working in schools can coordinate effectively the range of services needed by children with complicated medical problems.

(2) *Handicapped children.* Neither schools nor primary care projects can meet the complex needs of handicapped children. The program described by Dr. MacQueen would appear to be a salutary melding of health and education department responsibilities, yet few school based programs have attempted to prevent handicaps and developmental deficits by enrolling pregnant women in a program of screening and support.

(3) *Children with true medical emergencies.* Most emergency room personnel are not trained to cope with pediatric emergencies, resulting in unnecessary morbidity, some permanent disability, and occasional deaths. Pediatric psychosocial services usually are not available in emergency rooms. The problem reflects in part a "temporal" barrier to care that affects all social classes.

(4) *Children with geographic barriers to care.* Many children with varying problems that have important psychosocial dimensions—handicapped or obese children, for example—are very poorly served.

(5) *Children of the medically indigent.* Increasingly, public health departments and metropolitan hospitals are providing health services to people who are not covered by Federal programs and who cannot themselves pay. Institutions providing their care face serious financial difficulties. Many of these people are illegal aliens. Changes in current laws are needed to extend Medicaid coverage and other health benefits to those families and possibly even to allow HMO's to serve them. Contrary to popular belief, the poor today are not a stable and unchanging group of families. People near the poverty line—including the so-called near poor or working poor—have rapidly shifting eligibility for programs, which makes continuity of care virtually impossible. Changes in the law that would stabilize eligibility are needed, as are revised health insurance practices that would extend cover-

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age without further premium payment for 3–6 months after termination of employment, divorce or separation, or death, or until a new policy took effect.

The Role of Parents

During the workshop, numerous rationales for seeking close cooperation between parents and the health care system serving their children were expressed:

- In Europe, to achieve local control of programs, parents are involved financially as well as administratively in their planning and operation.
- Many boundary-area services—particularly psychosocial services—are closely related to home, family, and school environments.
- Parents may need special educational efforts about the importance of bonding during the newborn period and parent-child relationships in development.

Parents must not dominate the system, however, and programs should be centered around the needs of children.

Parental cooperation may not be achieved readily. Schools have been given an impetus to expand their health programs partly because working parents are not available to accompany their children to other caregivers. These programs run the risk of excluding parents from important decisions about their children's health or medical treatment. Some programs do not delay necessary treatment when parents are unavailable; however, this policy was controversial—some workshop participants would not substitute any "system" for the parents.

The Role of Consumers

Because of increased insurance coverage and the shifting composition of people in poverty, the number of people who see themselves as the continuing responsibility of public authorities has declined. Thus, fewer people are directly concerned with maintaining the permanence of public institutions. This may partly explain why recipients of public health and welfare programs, for example in California, are not actively opposing tax and services reduction proposals. Another possible explanation is that State programs are not close enough to the people they serve to engender loyalty or commitment.

Consumers must be involved in the planning and administration of services. During the past decade, a corps of sophisticated consumer activists—including many with substantial political clout—has developed in some parts of the country. Such consumers have proved themselves capable of assuming significant roles, as in the community boards of the Iowa child health centers or the maternal and child health council proposed for California. This type of "community participation" is perceived by some as less desirable than "user participation," and some

lingering doubts are present as to whether State and local government attempts to involve consumers will result in a true partnership in which program control is shared.

The Role of the Private Sector

Numerous examples were given of ways to include the private sector in public programs for primary care. In Great Britain, for example, the local public health agency may provide private physicians with office space, a public health nurse, a secretary, and so on, or reduce office rent or other administrative costs. The idea is to "surround the solo physician with community health services." Some rural programs in the United States have a nurse-midwife and physician team who alternate between public and private caregiving roles and are backed up by perinatal specialists from a medical center. These models are reportedly unproved. One effort to test the feasibility of public-private partnerships is a Robert Wood Johnson Foundation project to establish networks of primary care centers in urban areas. The project is trying to involve all health service providers in the community.

In Dr. Miller's proposal to the workshop, private providers would continue their predominant role. Their efforts in caring for the poor even could be expanded by better linkage with public systems, for example, with public health outreach. Contracts specifying services to be performed and outcome measures could be written by either Federal or State Governments with private, nonprofit corporations at the local level. This mode of organization might be especially attractive where a strong tradition for local health departments to be directly involved in rendering personal health care is not present.

Dr. Silver's proposed State plan would permit private groups that organize child health preventive programs—such as Boys' Clubs or church groups—to be reimbursed in part for their activities.

Despite their acknowledgment of the importance of private sector providers in expanded child health service programs, workshop participants made numerous criticisms of the private sector, including that:

- Private providers, namely physicians and voluntary hospitals, lack accountability
- The attitudes of local physicians have constrained efforts to increase the services provided by local health departments
- Private physicians—at least in some parts of the country—do not want any more minority patients, regardless of the payment mechanism
- Local doctors may not refer to other local doctors who have had special training—for example, in developmental pediatrics—but rather to distant medical centers to avoid competition
- Freestanding emergency rooms quietly provide outpatient care, which may not be appropriate, thereby avoiding friction with local physicians

Characteristics of Programs

Equity

Workshop participants agreed that an underpinning of equity of access should be present to proved services. Despite attempts to ensure financial access, however, additional inequities persist because of social, cultural, and geographic barriers. Making services available may be insufficient to ensure equity of access; perhaps a public agency should ensure that people actually receive the services. A public policy of this kind would not necessarily lead to coercion—participation could be completely voluntary for the individual, but not for the system. Such an expansion of the public sector role may be unlikely, given current trends to roll back the public health and welfare programs of the 1960's. In fact, some participants predicted a major disenfranchisement.

Services

The services provided even in boundary areas and outreach should be limited to a proved list, but not so large a list that it greatly exceeds the standard of practice of most pediatricians, or it will have no credibility. Numerous recommendations have been presented as to what a set of preventive services should be—recommendations notable for their similarity—from which a package of services could be defined, subject to revision as necessary.

Boundary Area Services

The importance of services in boundary areas was established early in the workshop. Boundary areas frequently discussed were preventive services, social supports, and health promotion strategies.

Some participants believe that preventive services should be provided by specially trained nurse practitioners separate from the medical care system, as in Great Britian. As a practical matter, it may be impossible to continue to pay physicians' rates for services that can be provided equally effectively by less expensive categories of personnel. However, if separate preventive and medical care systems existed, then the links between them would be crucial; the importance of linkages can be illustrated by the mutually reinforcing relationship between psychosocial stress and physical disease. Therefore, other participants believed that the medical-behavioral-social aspects of health are so intertwined that a separate prevention system might even be regressive.

Social systems and social supports are a second boundary area. Numerous conditions that are unfortunate responses to the "stresses, strains, and shortfalls" of life have been moved into the purview of medicine—overuse of alcohol or drugs, violence, "behavioral" problems, marital incompatibility, and teenage pregnancy, among others. The situations and social conditions that underlie these problems are not currently susceptible to medical solutions; but a rationale may exist for

moving them into the public health sector because they require the active intervention of other societal systems that already are public responsibilities—such as the judicial, social welfare, and educational systems.

Strategies for health promotion—a third boundary area—frequently relate to broad social policies that foster family and economic stability, such as those that provide for maternity leave with pay or ensure decent housing.

Multidisciplinary Approaches

Contemporary health and health-related services are not accessible to more children because many of them require the services of more than one profession or more than one agency. This implies a need for a new setting, for coordination and cooperation of service providers, and for new methods of communication between child care agencies and professions often trained in distinct disciplines with arcane vocabularies.

Accountability

Programs must be held accountable for meeting certain standards—access, quality of services, nondiscrimination, and so on. Two principles for establishing or maintaining accountability were put forward;

(1) Putting the burden of monitoring service delivery on recipients is unacceptable.
(2) When service providers and recipients are from the same sociocultural milieu, accountability is enhanced.

Measuring Programs' Effectiveness

Unfortunately, few good performance measures exist for evaluating health programs. Although outcome measures would be the best evaluation tools, process measures are usually the only ones available. Special evaluative tools are sometimes designed, therefore, as in the Iowa child health center program.

The group was advised against using reductions in infant mortality as a measure of program effectiveness. Too many variables are involved and changes are likely to be small. Programs can have many other beneficial, but less easily measured, impacts.

Manpower and Training

An important explanatory variable in the divergent assessments of the child health service models presented at the workshop may be whether "good people" were in key positions. Because the continued presence of good people cannot be ensured, systems are designed that presumably will function well, whoever operates them. Some workshop participants doubted whether a system can be developed whose success does not rely on the people in place.

Conscientious people are needed in the government at the program management level and at the service delivery point where they must be sensitive to client needs and perceptions. In fact, a study of the Early and Periodic Screening, Diagnosis, and Treatment Program found that the Federal Government had maximum impact in States where a core of committed officials was present to advance the cause, lobby in State legislatures, and work at the local (county) level. These people provided a resource base and an infrastructure. When "budget analysts" became the decisionmakers, the system broke down. Although people at crucial decision points in every level of government must be able to make tough decisions, the Department of Health and Human Services is a particularly complex management challenge, for which people are generally not well prepared. More than technical expertise or knowledge about maternal and child health issues is needed—systems knowledge also is required.

By and large, the workshop group was encouraged by the increasing ease of attracting good pediatricians into expanded public programs for child health. This is partly related to the rapidly increasing number of physicians being trained, coupled with declining numbers of middle class children in urban areas; partly it is because of pediatricians' being trained in multidisciplinary team settings, so that such programs feel familiar. In fact, a survey conducted by the American Academy of Pediatrics found that most pediatricians believe child care in the future will be conducted in pediatrician group practices, where some of the physicians pursue their subspecialty interests and the bulk of well-child care is provided by nurses. Today, however, few physicians have adequate knowledge about child development or skills in functioning as a member of a community-oriented child health team.

The hope was expressed that pediatric nurse practitioners could expand their caregiving roles outside doctors' offices. Some participants believe nurses to be particularly effective in the preventive aspects of care by dint of training, understanding of family relationships, and willingness to visit homes and establish liaisons with social agencies.

Incentives

A diverse collection of incentives was suggested during the workshop for:

- *Individual participation in child health programs.* If coercion is to be avoided, substantial incentives may be necessary to obtain participation. However, demonstration projects have shown that if services are available without barriers to access, they will be used.
- *Training of pediatricians.* Trainees will go where the money is; today, that is the tertiary care center, although community health centers would provide a far superior training experience.
- *Hospitals.* So much unmet need exists for psychosocial services that it would rapidly overtake the prepaid system's ability to provide them, unless additional incentives were present, such as differential payment.

- *Institutional providers.* Incentive arrangements (other than prepayment) in hospitals and other institutions could be used to increase productivity, decrease the use of less efficacious services, and garner savings that could be applied toward providing some boundary services. Any efficiencies gained through service or personnel cuts would have to be evaluated against performance objectives.

Organizational Matters

This grouping contains a miscellany of ideas regarding the impact of certain organizational characteristics of Federal programs on local health care systems.

Duplication of Programs

The need for streamlining numerous health programs is urgent. One purpose of the proposed home visiting program is to encourage better integration of services already available at the local level. A salient example of duplicative services is the range of programs for handicapped children. Perhaps the early assessment and intervention provisions of P.L. 94–142 (an entitlement law covering all children) could be meshed with similar provisions in the public health laws—Medicaid, CHAP, and EPSDT, for example. The chronic underfunding of P.L. 94–142 programs could be overcome if the health programs redefined services, benefits, or eligibility to facilitate reimbursement of schools for services provided.

The prospects not only for the streamlining effort described above, but also for improved school health programs in general may be decreased by the establishment of the new Department of Education.

The Advantages of Efficiency

If present funds were used more effectively, all new money would not be required for new programs. (For the proposed home visiting activity, the Department is apparently considering how to shift and reprogram.) In an era of constrained resources for public health, greater efficiency offers the only likely source of funds for new programs.

The Circumvention of Public Health Departments

Many Federal health programs as a matter of policy have bypassed State and local public health departments. In many parts of the country, fragmentation of funding has led to fences between programs, and public health departments and community health centers have become adversaries. Conceivably, health departments could expand their collaboration with such institutions as academic health centers, along the lines of regionalized perinatal care centers.

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Monitoring

Monitoring programs is extremely difficult—especially when multiple, private providers are involved—unless reporting is tied to payment for services. Monitoring should be a State responsibility with local health departments acting as their agents, but both the State and local levels must be involved.

Pluralism

A continuum of excellence is apparent in the various child health service delivery models that the workshop group discussed, which leads to the hypothesis that pluralism is desirable.

Advantages and Disadvantages of Project Grant Funding

Advantages

(1) Project grant funding—if well-defined outcomes are specific and external quality and cost control standards are enforced—would allow the provision of boundary area services without the potential for abuse inherent in the fee-for-service system.
(2) Projects can be large (even statewide) and can make services available to all children in the service area in a variety of settings.
(3) Project grants enable experimentation with different organizational schemes or modes of service delivery.

Disadvantages

(1) The results of projects are not necessarily generalizable; more generic approaches may be about equally effective.
(2) Demonstration projects are often discontinuous. After completion—even if successful—they are frequently shelved. (Thus an objective of Dr. MacQueen's child health centers program was to implement a strategy for continued funding after the 3-year grant expired.) Some communities, therefore, are refusing new demonstration projects. Nevertheless, statewide demonstrations may be useful possibly because their greater size and visibility would make discarding them more difficult).
(3) Permanent projects are underfunded.
(4) Categorical project funding results in centers' providing collections of disparate services and administrators' contorting their programs to maintain funding stability despite changing requirements. This fragmentation leads to ineffective services.
(5) But the basic difficulty is the lack of a system for primary care for children, into which projects could be fitted rationally.

Long-Term Versus Short-Term Goals

Present circumstances—particularly the apparent constraints on major new Federal programs—must be considered in designing child health strategies. Whereas those things that can be accomplished in the relatively short term may be rather limited, near-term efforts should not work against long-term goals.

Some specific long-term goals were mentioned:

- *Regarding specific care settings.* In the long term, Federal policies should foster decentralization of primary care to the neighborhood level. Schools may be some communities' only viable institutions for conducting a child health program; however, emphasis on this setting might create a dual system of care that separates families from children and ultimately undermines health goals.
- *Regarding universal entitlement.* The opinion was expressed that a system should be universally available to provide care to children under federally established guidelines. If these guidelines are met, tax moneys could be used to support the program. Thus the 70 percent of children who now receive care from private doctors' offices or clinics would also be entitled to the defined services. A universal system has the theoretical advantage of not defining those who receive the services as "poor," but the attitudes of physicians who do not like to treat poor–minority patients may produce a dual system, anyway. Perhaps a universal system could be approached incrementally, in which case it could begin with "health" rather than medical services.

Federal-State-Local Government

The most contentious issue discussed at the workshop was determining the appropriate roles for Federal, State, and local governments in the organization and delivery of maternal and child health services.

Standard-Setting

If any points of agreement were in this debate, they appear to have been that the responsibility for setting health status and health service standards should repose with the Federal Government and that strong national leadership is needed to produce improvements in child health programs. State and local government also could promulgate standards that take into account special or additional needs of their resident populations. These would not supersede Federal standards, unless they were stricter.

Meeting the Standards

Through Federal Efforts

Conceivably, establishing standards, setting target dates, awarding

grants, and conducting appropriate oversight could be the extent of the Federal role. If States met the standards, they could receive funds relatively unfettered. The Federal Government could serve as a residual guarantor of services, if smaller units of government failed to provide them.

However, some workshop participants were convinced that the responsibility for meeting standards should also lie with the Federal Government. For one reason, it has the most reliable sources of funds. (Many State and local health departments—even those that have been functioning well—are faced with cutbacks in funding for services.) Moreover, focusing a comprehensive child health strategy at the Federal level may have systems advantages.

Another role for the Federal Government would be to establish consistency in the data gathering and reporting requirements of its health programs.

Through State and Local Efforts

State and local efforts to meet the national standards could be organized in local agencies (such as public health departments) or left to multiple providers.

One view is that an organized governmental presence should be operating at the local level, which is likely to be a public health department and could help community providers render services and fill gaps. The strategies for achieving the national health standards would be left to the discretion of the local agencies. If health status standards were not achieved or service utilization was not maintained at predetermined, acceptable levels, the health agencies could be residual service providers or guarantors. If the State and local government agencies failed to meet the standards, the State could lose revenue-sharing moneys. (Merely taking away funds for the poorly operating programs is insufficient, and possibly counterproductive, as it removes any incentive to perform.)

Alternatively, the strategy for meeting national health status and service standards could be left entirely to diverse local programs, without requiring a State and local health agency filter. In a variation of this approach, some local agency (perhaps health departments) could be charged merely with ensuring that everyone got into the system.

In either case, local health systems agencies could help fix priorities and allocate resources according to Federal, State, and local objectives.

Criticism of Federal-State-Local Efforts

"There's more than enough blame to go around," one participant noted. Serious criticisms were raised about the effectiveness of every level of government in providing child health services. Yet, some problems that exist within each—such as fragmentation—require cooperative strategies.

Criticisms of Federal Efforts

Criticisms leveled at the Federal Government's regional offices went unchallenged. Presently they are regarded as providing neither the

necessary program supervision nor leadership. Ideally, regional offices would assist in State and local government initiatives. As discussed elsewhere, some Federal policies and actions have diluted the strength of State and local health departments.

Whether the Federal Government could assume a greater role in ensuring child health services was doubted by those who believe that:

- The rationale for sustained support of a child health program that does not have strong State and local constituencies might be blown aside by shifting political winds.
- Because of the tax revolt (although expressed at the local level but intended to be aimed at higher government levels) significant expansion of Federal child health programs may be unlikely to win politial support.
- Beyond the State level, government becomes too large to function effectively and is unresponsive and impersonal; for these and other reasons, the Federal Government has proved itself incapable of delivering health services.

Criticisms of State and Local Efforts

Workshop participants' criticisms of a national plan that depends on State and local government initiatives were based on:

- The past unresponsiveness of local-State governments to consumer needs and their unwillingness to serve the most vulnerable populations
- The recalcitrance of State and local governments in involving consumer-users in program planning
- The belief that State or local governments will not accept national goals
- The shortage of trained manpower and the lack of appropriate organization at the State and local levels
- The difficulty of implementing a national program that would involve only good health departments and simultaneously strengthening weak ones
- The strength of private provider opposition to expanded public programs at the local level
- The possibility that "local initiatives" may be promoted as a means of avoiding Federal accountability standards

On the other hand, the experiences reported by some participants support a greater State and local role. Furthermore, when program responsibilities are at the State and local level, people have more of a stake in a program and may value it more.

Accountability

In the protracted discussion about the relative accountability of Federal, State, and local governments, it was suggested that accountability structures must be established at each level. State demands for program flexibility must be matched by Federal demands for accountability.

Research Requirements

Although far from an exhaustive list, the following research requirements mentioned by the workshop participants appeared to need special consideration.

(1) Research on preventing premature, high-risk births
(2) Experiments and demonstrations on ways to provide health care to pregnant women and children that is more comprehensive, universally accessible, and more appropriately provided and utilized, and
(3) Research on the comparative effectiveness of various mechanisms for organizing maternal and child health care services

APPENDIX A

SELECT PANEL FOR THE PROMOTION OF CHILD HEALTH WORKSHOP ON ORGANIZATION OF HEALTH SERVICES FEBRUARY 21 AND 22, 1980

Annotated Agenda

Session I (Thursday, 9:30–12:30 and 1:30–5:30)

Organizational mechanisms to reach more infants, children and pregnant women with needed health services

Proposition	*Discussant*
A. That federal policy should encourage some or all of the following mechanisms as a means of expanding the availability of needed health services (including preventive services) to children and expectant mothers, improving access to these services by underserved groups, and strengthening the capacity of the health system to offer appropriate services relating to the social and behavioral aspects of health and illness:	R. Haggerty
Question to the group: With regard to each of the following strategies, how would public policy have to be changed to accomplish the	

stated objectives? Which of the six alternatives listed below are most promising and represent a high priority for public intervention?

1. Expanded support of publicly financed organized settings, including community health centers, M&I centers, C&Y centers, urban health initiatives, rural health initiatives, migrant and other primary care centers.	B.Lefkowitz
2. Expanded use of schools as sites for case-finding, coordination, and/or provision of care.	R. Walling R. Hearn
3. Expansion of the capacities of HMO's to meet the needs of low income mothers and children and to provide a broad array of maternal and child health services.	J. Holloman
4. Expanded use of public health departments as sources of primary care and related services.	C.A. Miller
5. Strengthening the capacity of hospital OPD's as providers of and backup for primary care.	M. Heagarty
6. Home visiting to infants by public health nurses or by lay health visitors under nurse supervision.	S. Stoiber

Session II (Thursday evening, 8:00–10:00)

Organizational mechanisms to reach more infants, children and pregnant women with needed services (continued)

Proposition	*Discussant*
B. That federal policy be designed to assure that all infants, children and pregnant women receive certain defined basic health services:	A. Miller

Question to the group:

Should federal policy, which has traditionally been aimed at assuring the *availability* of needed health services, be extended to assuring that infants, children, and pregnant women *actually receive* certain needed services? On what grounds might such a policy

change be called for? By what mechanisms would it be implemented?

Session III (Friday, 9:00–12:00)

Sources of support for improved organizational mechanisms

	Proposition	*Discussant*
C.	That the changes needed to improve the provision of health services for children and pregnant women are most likely to be brought about by a dual strategy of modified and expanded federal categorical grant programs, and a strengthened federal role in private and public third party payment programs. *Question to the group:* What are the potentialities and limits of the federal grant approach (which might include a substantially modified and expanded Title V), and of a strengthened federal role in third party payment programs and policies (which might include greater public regulation of private insurance, federalization of Medicaid, incentives for alternatives to fee-for-service payments to providers, and national health insurance for mothers and children)? What is the optimal mix of investment in each of these approaches?	R. Blendon S. Jones
D.	That the federal government encourage the establishment of health districts and taxing authority. *Question to the group:* Would it be useful, and is it realistic, to try to establish an independent local tax base and unit of governance around which to organize all publicly supported primary care services for children and pregnant women?	A. Nichols
E.	That various types of public funding can best be combined or coordinated by the creation of "community child	J. MacQueen

centers" which would assure basic health services for all children in the community, with scope of services to be determined locally.

Question to the group:

Would the creation of such a new entity be the most promising way to overcome existing problems of fragmentation, duplication, and gaps in services to all children, and especially handicapped children?

Session IV (Friday, 1:00–4:00)

Mechanisms to assure that federal child health funds are spent effectively at the state and local level

Proposition		*Discussant*
F.	That the newly proposed federal administrative reform, providing a "basic framework for an integrated Federal/State/local system for budgeting and managing health services programs" (which includes grants to States and local governments for the underserved), must be implemented in ways that take into account the special needs of pregnant women and children. *Question to the group:* What are the specific ways in which implementation of these proposed reforms must take into account the special needs of children and pregnant women, so as to promote the most effective expenditure of federal maternal and child health funds at the state and local level?	B. Lefkowitz
G.	That the federal government assign to a specific public agency the responsibility for planning and assuring the availability of all maternal and child health services in any given jurisdiction.	B. Myers

Question to the group:

What are the advantages of having the federal government designate a lead MCH agency in each state, and what would be the appropriate scope of authority for such agencies?

H. That several statewide pilot programs be initiated and financed through the pooling of federal child health funds (with waivers contingent on the submission of a state plan meeting specified federal criteria), in order to demonstrate the effectiveness of a comprehensive preventive health service for children. — G. Silver

Question to the group:

What are the potential advantages and attendant risks of an experiment in radical MCH federalism, and how would such an experiment have to be designed to be feasible and yield generalizable results?

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APPENDIX B

MEMORANDUM — Department of Health, Education, and Welfare
Public Health Service
DATE: November 7, 1978

SUBJECT: Enrollment of the Elderly and the Indigent in HMOs

The requirement that HMOs enroll persons broadly representative of the various age, social, and income group areas has not been achieved. This has manifest itself in the inadvertent discrimination against our elderly and indigent. This large and growing group of people with limited financial resources are, perhaps, in the most need for benefits provided by

a cost effective organized system of health care delivery. The reasons for this situation are numerous and complex, however, simply put they are:

(1) The primary focus of HMOs marketing effort has been directed toward the young, healthy, private sector employee groups.
(2) Many States regulatory and licensing agencies have been reluctant to enter into contracts to provide care for Medicaid beneficiaries.
(3) Cumbersome and incentive lacking Medicare reimbursement systems have precluded meaningful participation for the elderly.
(4) The HMO Act itself does not specifically require that Plans seek or receive a Medicaid contract.
(5) The HMO Qualification Development process does not actively encourage Medicaid participation.
(6) Some Plans may simply not want to serve this clientele.
(7) HMOs have been reluctant to subject themselves to the additional regulatory agencys that this would entail. To provide prepaid services to the elderly or indigent persons, HMOs must contract with HEW to provide Medicare benefits and with States to provide Medicaid benefits.

Medicare

Meaningful participation by this group of people awaits enlightened legislation to allow full risk prepaid capitation agreements. Reasonable rate reimbursement mechanisms could allow these people to receive a much broader scope of benefits and thereby providing an incentive to join an HMO. Alternately, the overall cost of providing the same scope of benefits to this group of people could be reduced.

Medicaid

The option for State agencies to contract with prepaid health plans has existed since 1970 but Medicaid enrollment remains less than one percent of the total eligible. Less than one-third of the qualified HMOs have State contracts for Medicaid. Only twelve States have any contracts with HMOs and sixteen States that have qualified HMOs do not contract for Medicaid services.

It has been conservatively estimated that a savings of 15 percent in medical care delivery cost would be accomplished for each individual transferred from the fee-for-service Medicaid or Medicare programs to the HMO program. In addition, these individuals would benefit from an organized system of health care delivery that guarantees access to care and has some controls to ensure the quality of care delivery.

HCFA/HMO Medicaid Initiative

HCFA is supporting a Medicaid HMO initiative to achieve three goals. They are:

(1) Increase the number of qualified HMOs which contract with States.

(2) Increase the number of States which contract with HMOs.
(3) Increase the number of Medicare/Medicaid beneficiaries enrolling in HMOs.

In order to be successful in this initiative, a number of barriers will have to be overcome.

State Agency/HMO Barriers

Some of the barriers that the State agencies and HMOs must overcome are:

(1) The need for State enabling legislation, regulation and contracts.
(2) A methodology for determining the appropriate capitation rates.
(3) Difficulty in HMO marketing to Medicaid beneficiaries and the attendant high costs.
(4) Assurance that quality medical care will be delivered.
(5) Stabilization of the mercurial Medicaid eligibility.
(6) The additional monitoring and regulation required of the HMOs.

Beneficiary Barriers

The primary concern of the Medicaid beneficiary is survival. Health care becomes secondary to cash grants, nutrition, and housing for the family. They have become conditioned to receiving crisis intervention medical care from emergency rooms and county hospitals. Some of the barriers that must be overcome to encourage Medicaid beneficiary enrollment are:

(1) Education. Medicaid beneficiaries are not generally knowledgeable about the health care options available to them.
(2) There are few incentives to encourage the Medicaid beneficiary to enroll in health maintenance organizations which may restrict their freedom of choice for a physician.

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